DOCUMENT RESUME

ED 107 312 52 IR 002 267

TITLE Toward a National Program for Library and Information Services: Goals for Action.

INSTITUTION National Commission on Libraries and Information Science, Washington, D.C. National Program for Library and Information Services.

PUB DATE Jun 75

NOTE 115p.

AVAILABLE FROM Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 (Stock No. 052-003-00086-5; $1.45)

EDRS PRICE MF-$0.76 HC-$5.70 PLUS POSTAGE

DESCRIPTORS Centralization; Computers; Copyrights; Federal Programs; Financial Support; *Information Networks; Information Services; *Information Systems; *Libraries; Library Cooperation; *Library Networks; Library Planning; Library Standards; *National Programs; Program Proposals; Publishing Industry; Telecommunication

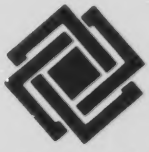
IDENTIFIERS National Commission Libraries Information Science; NCLIS

ABSTRACT

The National Commission on Libraries and Information Science (NCLIS) presents its goals and plans for a national program of library and information services with the intention of satisfying the nation's information needs to the greatest extent possible. The basic needs and rationale for a national program are stated, and a survey is made of the present situation of public, special, school, university, research, academic, state, and federal libraries and information services. The concerns of publishers and providers of information services in the private sector, as well as copyright problems, are reviewed, Existing network and cooperative efforts are examined along with some impediments to further cooperation. The NCLIS recommendations for a national program encompass: objectives; relationships and responsibilities of states, the private sector, and the Library of Congress; proposed legislation; funding; and the nationwide network concept. Major federal responsibilities involved in a nationwide network are delineated in the areas of standards, resource collections, centralized services, exploration of computer use, new forms of telecommunications, research and development support, and cooperation with other nations and with international organizations. Appendixes contain enabling legislation and lists of NCLIS members and staff. (LS)

ED107312

Toward a National Program for Library and Information Services: Goals for Action



Prepared by

The National Commission on Libraries and Information Science

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IR 002 267

Washington, D.C.
1975

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Note:
The logotype on the cover is an abstract representation of the Commission's goal of "equal access to information" for all citizens through interconnecting services and a central core of information.

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Library of Congress Cataloging in Publication Data

United States. National Commission on Libraries and Information Science.

Toward a national program for library and information services: goals for action.

Includes bibliographical references and index.

1. Libraries—United States. 2. Library cooperation—United States. 3. Information services—United States. I. Title.

Z731.U5665 1975 021'.00973 75–15775

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C. 20402—Price $1.45
Stock Number 052-003-00086-5

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Preface

In June 1973 the National Commission on Libraries and Information Science (NCLIS) voted to direct its energies toward the preparation of a document describing a broad outline of a National Program for Library and Information Services.

After the first draft of the document was prepared, it was widely circulated throughout the library information community to solicit criticisms, suggestions and new data. On the basis of initial reactions, together with the additional work accomplished concurrently by the Commission, a revised document was developed and a new feedback cycle was initiated.

The present document is the result of the feedback process. It seeks to provide a framework on which the library and information science professions and the American public will be able to construct a National Program for Library and Information Services for the people of the United States. It reflects comments received by the National Commission on Libraries and Information Science in hundreds of letters from organizations, private individuals, testimony given at many regional hearings throughout the country, and opinions gathered at seminars and open forums conducted through the professional societies.

In this document can be found the basic justification required to substantiate the need for a National Program and for new Federal legislation. The Commission expects to recommend Federal legislation starting in 1976. That year, when we celebrate the 200th anniversary of this nation's independence, will be a most appropriate time to inaugurate a National Program for Library and Information Services that realizes the potential of the information revolution now underway.

Users of information, the American citizens, have been paramount in all of the Commission's deliberations. The proposed program aims to increase each person's access to the nation's rich knowledge resources.

The Commission is aware that the adoption of new information techniques requires careful planning, patience and a great deal of cooperative effort by many people. To assist it in perceiving the problems of transition, the Commission sought the advice and guidance of many specialists in different

fields. Their monographs on various relevant topics and issues are listed on page 85 for the reader's reference.

It should be stressed that this National Program Document has no official status. It sets forth the Commission's conclusions and goals for action which can be taken toward the formulation of a national policy. Its realization depends upon the approval of the Congress and the President, state legislatures and officials, all those responsible for and interested in library and information services, and, ultimately, upon the support the program receives from the United States citizenry.

The members of the National Commission on Libraries and Information Science join me in thanking all those who have assisted in the development and revision of this National Program Document. This document is a dynamic, long-range plan and, as such, will undergo constant scrutiny and revision. It is our intention to issue a revised edition of the National Program Document within two years. We welcome your continuing suggestions and constructive criticism.

I wish to take this opportunity to acknowledge the contributions and efforts of the members of the National Commission in the development of this document, especially the Commission's National Program Committee consisting of, in addition to myself, William Baker, Carlos Cuadra, Leslie Dunlap, John Lorenz, Bessie Moore, and Joseph Becker, Chairman. Special thanks and appreciation must go to Mr. Becker for assuming the major responsibility for drafting the National Program Document. I am also appreciative to Roderick Swartz, formerly Deputy Director of the Commission, for his help in preparing the second draft, and to Alphonse F. Trezza, Executive Director of the Commission, for his efforts in the revision and preparation of the third draft and the final manuscript.

Frederick Burkhardt
Chairman
May 1975

Introduction

The National Commission views authors, publishers and librarians as the principal participants in the production and dissemination of the intellectual and technical knowledge which powers our national development and nurtures our educational system. They are component parts of a national knowledge resource * that must be strengthened, integrated and sustained for all the people of the United States to use as needed in the course of their personal and economic pursuits.

National concern for protecting and improving the nation's knowledge resources is evident in many past actions of the Congress and in the growing number of legislative proposals calling for specific information programs. The Office of Management and Budget in the Executive Branch of Government has also stressed the need for orderly growth and wise management of library and information facilities within the Federal Government.

If our nation is to achieve the most effective use of national information resources and the largest return for funds invested in them, common goals, objectives, methods and standards are needed now for the coordinated development of information facilities. Unless a coordinated program is established on a nationwide level, expenditures, facilities, and efforts will be unnecessarily duplicated, and interconnection will become increasingly difficult as local, state and multistate systems develop without benefit of a common purpose and a common approach.

The Commission believes that the existing pattern of libraries serving limited geographic areas or various special interests will lead to costly, uneven and wasteful services if steps are not taken now to provide a firm foundation for their future development. Accordingly, the Commission believes the time has come to develop a nationwide program which would weld together today's collection of disparate parts into a nationwide system of library and information services.

Essentially, the National Program formulated by the Commission is based on five major assumptions:

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* The word "knowledge" in this document is used interchangeably with the word "information."

First, that the total library and information resource in the United States is a national resource which should be developed, strengthened, organized and made available to the maximum degree possible in the public interest. This national resource represents the cumulated and growing record of much of our nation's, and indeed, much of the world's, total cultural experience—intellectual, social, technological, and spiritual.

Second, that all the people of the United States have the right, according to their individual needs, to realistic and convenient access to this national resource for their personal enrichment and achievement, and thereby for the progress of society.

Third, that with the help of new technology and with national resolve, the disparate and discrete collections of recorded information in the United States can become, in due course, an integrated nationwide network.

Fourth, that the rights and interests of authors, publishers and other providers of information be recognized in the National Program in ways which maintain their economic and competitive viability.

Fifth, that legislation devised for the coherent development of library and information services will not undermine constitutionally-protected rights of personal privacy and intellectual freedom, and will preserve local, state and regional autonomy.

The National Program derives from regional hearings held throughout the country, and from conferences, informal discussions, and correspondence with professional, technical, governmental, educational, and other experts, as well as with library users, whose interests in the emergence of an information-centered program attracted them to the work of the Commission. The Commission's working philosophy is user-oriented. It is the Commission's intent that the user of information—including potential, as well as current users—should be the principal focus of a National Program.

The Commission's current goal is to develop a plan for a flexible network of information services to meet the immediate and foreseeable information requirements of the greatest possible number of people. The Commission will therefore continue to concentrate its efforts in the years ahead on this ideal:

> To eventually provide every individual in the United States with equal opportunity of access to that part of the total information resource which will satisfy the individual's educational, working, cultural and leisure-time needs and interests, regardless of the individual's location, social or physical condition or level of intellectual achievement.

To make progress toward the attainment of this goal, the Commission has developed two major program objectives: (1) to strengthen, develop, or create where needed, human and material resources which are supportive of high quality library and information services; and (2) to join together the library and information facilities in the country, through a common pattern of organization, uniform standards, and shared communications, to form a nationwide network. Such a program must have incentives strong enough to encourage maximum cooperation and participation, not only by state and local governments, but by interested public and private agencies as well.

Although the Federal Government would have responsibility for aiding in the development of compatible state and multistate networks, furthering common practices, performing relevant research and development, increasing coordination between the private and public sectors, improving access to the information resources of Federal agencies, and performing other relevant functions, the Federal Government would neither directly control nor operate the nationwide network, and, in particular, it would exercise no control whatsoever over the information content exchange over the network.

Furthermore, the nationwide network proposed by the Commission would not be a monolithic and authoritarian superstructure, but would form a shelter and framework for families of geographic and functional networks developed and interconnected according to a comprehensive plan. There currently exist many networks of varying sizes, all of which must

be integrated, starting at the local, state and regional levels and building upward.

It is important to point out that the concept of a "nationwide network" does not imply the absurd notion that only one copy of a particular book or publication will be sufficient for the entire country to use. People need material at the most immediate and most accessible level, and the Commission believes that a national plan must, therefore, be built upon strong local resources. An ideal nationwide network requires provision of local holdings of sufficient scope and quantity to satisfy the immediate needs of local users.

In the same vein, the concept of a nationwide network does not imply a substitution of computer technology for human resources. As in the past, the bulk of user services would be delivered at the local level, but the network would provide the additional back-up resources as well as the communication directions for reaching specialized materials and information in other libraries and information centers when these are needed locally.

The Commission's National Program, as described in this document, is intended to provide the general basis for new Federal legislation. It will help to focus public and professional attention on the critical library and information problems facing the nation today, and it will lay the foundation for a major upgrading of library and information activities, an expansion of cooperative services throughout the nation and planned system development.

Chapter I

The Need for a National Program for Library and Information Services

In establishing the National Commission on Libraries and Information Science (Public Law 91-345), Congress affirmed that "library and information services adequate to meet the needs of the people of the United States are essential to achieve national goals and to utilize most effectively the nation's educational resources." It called on the Federal Government to "cooperate with state and local governments and public and private agencies in assuring optimum provision of such services." Furthermore, the law authorized the National Commission to "promote research and development activities which will extend and improve the nation's library and information-handling capability as essential links in the national communication networks."

The Resources

Information, whether in the raw form of empirical data, or in the highly processed form we call "knowledge," has come to be regarded as a national resource as critical to the nation's well-being and security as any natural resource, such as water or coal. The wealth of popular, intellectual, scholarly and research resources in the libraries and information facilities of the United States is one of the great strengths of the nation. But like many natural resources, knowledge resources, uncoordinated in growth and usage, are in danger of being wasted and inefficiently utilized.

In advanced societies, a substantial part of the culture is handed down to successive generations in the form of recorded knowledge. This resource consists of books, journals, and other texts; of audio and visual materials; and of smaller units of information or data that can be separately manipulated, as by a computer. In recent years, these records have become

increasingly varied—through technological extensions of written words, pictures and sounds. For example, a significant part of the country's information resource is now on film, on video tapes and in computer files. As the nation's knowledge grows and the number of records increases, our dependence on them increases, and the need to gain access to them becomes more crucial. "No society can advance beyond a certain point without effective access to its collective memory of record, or conversely, an advanced society that loses control of the record will regress." [1]

In the United States information is created, stored, processed and distributed by a vast array of diverse information activities in the private and public sectors, employing millions of people and dealing with billions of dollars, using widely varying technologies to achieve equally widely varying objectives. The publishing industry, indexing and abstracting and other access services, the communications media, and private and public information services are just a few of the many and varied elements that make up the rich mosaic of the contemporary information scene. The more than 8,300 public libraries,[2] thousands of school libraries, libraries in colleges and universities, armed forces, law, medical and religious libraries, special libraries, and information analysis centers, as well as other information facilities in the public and private sector, serve as custodians and dispensers of recorded knowledge in every form.

Libraries and other information facilities are the custodians of that part of our cultural heritage which is recorded. They must be adequately equipped, organized, financed and interconnected if their resources are to be made available to all the people of the United States. This, the Commission feels, can only be brought about with the help of the Federal Government, in full cooperation with state and local governments, and related public and private agencies and institutions. The Federal Government has a continuing responsibility to implement innovative, flexible measures that will ensure the continuing development of libraries and information services.

The Need for Access

Ready access to information and knowledge is indispensable to individual advancement as well as to national growth. The

right information provided when it is needed, where it is needed, and in the form in which it is needed, improves the ability of an individual, a business, a government agency, or some other kind of organization, to make informed decisions and achieve particular goals.

Users are individuals, each with unique informational, educational, psychological, and social needs. A person may need "practical knowledge" to solve immediate problems in his daily life and work. There may be a need for "professional knowledge" to further his continuing education. Or there may be a need for "intellectual knowledge," the kind that furthers his understanding of the arts, humanities, and sciences, and which enriches the individual's personal life. Reading for pleasure, pursuing an innovative idea, or exploring knowledge just to satisfy one's innate curiosity, are other valid motives for reading, listening or looking. In addition, people feel the need for ethical, religious and philosophical insights.

Organizations, like individuals, need information and knowledge. Business organizations need facts and data to forecast a market, develop a new product, or adapt a new technology. Schools need information to improve and extend the learning process. Research organizations need information to synthesize new data with known facts as part of the creative process. Government needs information at every level to formulate plans, refine decision-making, and help government workers to anticipate and resolve problems.

The 93rd U.S. Congress accurately described the character of the national information need in Senate Joint Resolution 40 (P.L. 93–568) which authorizes a White House Conference on Library and Information Services. The law states that ". . . access to information and ideas is indispensable to the development of human potential, the advancement of civilization, and the continuance of enlightened self-government."

It is almost impossible to generalize in assessing user needs. To understand the variety of user needs for library and information service and the extent to which they are being met, the Commission has conferred with many individuals and groups representing different constituencies. It is clear that library and information needs are felt at all levels of society, regardless of an individual's location, social condition, or level of intellectual achievement. Although library and informa-

tion needs are not the same in all parts of the country, and although they vary widely among people by age, ethnic origin, educational achievement, work assignment, geographic location, and many other factors, most people feel some dependence on the availability of accurate and useful information.

User needs can be described from several perspectives. For example, the retarded, the illiterate, the blind, the visually handicapped, the physically handicapped, and the institutionalized require highly specialized resources and services. The immediate informational and library needs of young adults include easy access to library materials such as paperback books, phonograph records, reference materials, and audiovisual materials. Various ethnic groups, such as American Indians, Asian Americans, Black Americans, and Hispanic Americans require not only the traditional level of library and information service, but also various kinds of special help. For example, they need materials and services in their own language, or help in reading English, or specific knowledge such as where to go for a job. Users in the professions, such as the scientist, the researcher, the scholar, and the lawyer, require information for increasing their own productivity and for their continuing education. They often need information quickly, and some of them are accustomed to using computers, telecommunications, and other technology, if necessary, to get it. In addition, there are those whose information needs are affected by their location—the rural population and others in remote areas who do not have direct access to major resources as do their counterparts in metropolitan areas. Other user groups, such as senior citizens, the very young, and the poor, need still other kinds of services and resources.

The Commission is keenly aware that much more must be done to develop systematic understanding of the information needs of various special constituencies in the United States such as the economically disadvantaged, the uneducated and the handicapped. We need to know who they are, where they are, what they need, how fast they need it, and the cost and value—to them and to society—of increasing their access to information and knowledge. We also need to know who the nonusers are, what information services are important to them, why they do not use the existing facilities, and how to motivate and educate them so they will make use of such facilities.

The Challenge

America has an abundance of recorded information, not a shortage. However, this precious resource is concentrated in relatively few locations, often virtually inaccessible to millions of people, and is lying largely untapped. Thus, the challenge is to find the means for making these resources available to more people through an effective identification, location and distribution system. Many local library facilities and procedures designed for other times and conditions can no longer cope with the ever-increasing volume of information produced in this country and abroad—nor can they fully satisfy the rapidly-changing information needs of our society.

The information-dependent institutions in our society—business, industry, agriculture education, government, professional societies, and others concerned with information service—are alarmed by the deteriorating ability of some information facilities to meet the essential needs of their constituents. In some fields, such as medicine, where the need is great and perhaps better understood, Congress has passed special legislation for development of information systems tailored to those specific requirements. These have been successful. In other fields, where the need is no less great, there has been little or no Federal activity. Local programs to improve libraries and provide better information services have usually been uncoordinated—lacking in continuity, overall leadership and sufficient funding. The nation must take steps now to strengthen and organize these resources into a coherent nationwide system, or it may soon face a form of information chaos which will sap the nation's intellectual energy and weaken its educational structure. Although information and knowledge exist in prodigious quantity in our country, they are unevenly distributed, and we often do not have the means to move relevant information to those who need it at the time they need it.

New networks can be developed where required and existing ones can be extended to allow requisite information to be moved to individuals and groups, some of whom can scarcely be expected to travel to the established information resources available today. If this is not done, the nation's ability to adapt to changing environmental, societal and political conditions and to find solutions to major problems is diminished. Without valid and timely information, the economy can atrophy;

without current and reliable information, society and government may falter; without relevant and useful information, individual development can languish; and without adequate means for distributing information, new knowledge backlogs.

Libraries and information centers in the United States are not developing according to any national plan, and consequently, from a systems viewpoint, their growth continues to be uneven and lacks cohesion. There are gross inequities in library service in the United States today. A new philosophy of library and information service is needed, one based on a common sense of direction and purpose, a commitment to national cooperative action, and a consistent program of equalization.

The scope of the Commission's charge by Congress encompasses the library and information needs of all the people of the United States. It is the Commission's view that the time to introduce remedial and innovative reforms is now, and not later when the information crisis has become worse. Consequently, the Commission has directed its efforts toward planning a new nationwide program for better, faster, and more effective library and information services, a program which would eventually provide people everywhere in the country with access to broad reserves of intellectual energy, so that they may lead full, satisfying, and productive lives as creative and responsible members of society.

The Influence of Technology

This nation's future capability to handle information effectively will, to an important degree, depend on how well and how rapidly we are able to integrate new technological methods and devices into the mainstream of our information activities.

Libraries are affected by four new technologies: computers, micrographics, telecommunications, and audio-visual media. The use of computers in libraries has already been pioneered. However, direct application of computers in libraries has been focused mainly on housekeeping functions; the computer's potential for recording, analyzing, and retrieving information has not yet been fully explored and realized. In addition, there are critical shortages of trained human resources and funds to help libraries convert from manual to machine methods.

The use of micrographics for preservation and compact storage is increasing but is far from widespread. While many publishers are making books, journals, and even entire libraries available on microfilm, there is still user resistance to materials in microform because special equipment is required for reading. In order for anyone to read the information in a small microphotograph, it must be magnified for viewing. Lack of an inexpensive portable reader, lack of standardized forms of film, and related equipment incompatibilities, have seriously slowed the rate of acceptance. It has become clear, however, that microfilm technology offers considerable potential for space and cost savings in libraries and represents a new era in information transfer. Together with the computer and telecommunications it promises to become a powerful force in shaping future library and information systems.

Libraries have been reasonably active in acquiring audiovisual materials: films, filmstrips, slides, audio cassettes, videotapes, video cassettes, and computer tapes. Unfortunately, capable personnel to handle such materials are in short supply, and the equipment is not only complex and expensive, but, in many cases, so little standardized that it causes difficulty and confusion to the user. A critical source of evaluation is needed to cope with the profusion of new and often incompatible devices that continually appear on the market.

Community Antenna Television (CATV), also known as cable television, is a technology still in its infancy. CATV stations have very powerful antennas that enable them to capture TV signals from many distant transmitters and retransmit the signals to the home through underground cables. Today, the technology embraces versatile broadband communication systems capable of providing the subscriber, by means of cable, with many channels and, potentially, two-way communication of both picture and sound, facsimile service and access to data processing. It thus becomes possible to bring sound and picture answers to information questions directly to individual home TV sets, over CATV educational channels reserved by Federal Communications Commission regulations for this purpose. Although there have been some library experiments exploring the possibilities for developing new library services and providing remote use of present services, much more needs to be done before the full potential of CATV for library applications is realized.

The potential for telefacsimile reproduction among libraries is very promising, but present costs per page of transmission and copyright considerations hamper its extensive use.

The joining of such diverse technologies as computers and telecommunications represent a new capability of great potential value to the United States. As yet, the nation has not perceived the far-reaching consequences of being able to distribute information to distant points with relative ease. CATV systems and computer data banks are just beginning to be used by libraries as means for information dissemination.

In the last decade, technology for the creation, processing and transmission of information has been vastly extended. Numerous on-line computer information systems are operating, and it is now realistic to consider harnessing the power of technology for new systems of organization, retrieval and distribution of information through networks. Advances in technology, and in information practices, occur each year. The Commission believes that the potential of the new technologies must be utilized to the fullest extent possible, and that this potential can be realized only by means of coordinated planning and adequate financing.

National planning for information technology is essential for several reasons. First, information technology is costly, and a long-range commitment from the Federal Government is required for sharing costs, contributing to research and development, and ensuring the stability of the program. Second, information technology is complex, and a common sense of technical direction at the national level is imperative, if all relevant agencies are to coordinate their activities effectively. Third, information technology is specialized, and its implementation will depend upon the technical education of the people who will work with it. And, finally, information technology breaks down former barriers to access.

Its introduction, therefore, invariably alters traditional ways of doing things and necessitates national concentrated attention on re-education of the specialist and the user.

There are two other important reasons to plan on the national level: (1) the rising cost of conventional library operations requires that information activities develop cooperative arrangements, which, if done outside of a national context, will be very difficult to interrelate; and (2) today's Federal

policy decisions with respect to telecommunications can greatly affect information practices for many years to come.

A Threshold Issue

Resolution of the complex problem of copyright is crucial to the continuing development of cooperative programs and networks among libraries.

It was the Copyright Law which enabled the United States to achieve for its people the freest, the most uncensored, and the widest dissemination of information in history. Copyright is, in fact, the Constitutionally prescribed means for promoting the progress of science and the useful arts.[3] It provides the creator a limited monopoly, not in the ideas, but in the form in which they are embodied.

In recent years, because of the widespread introduction of easy-to-operate copying machines and simplified means for distributing information electronically, the issues relating to copyright protection have grown increasingly complex. If the nation is to maintain the open and free society we enjoy today, with broad dissemination of information, then an updated system of copyright is absolutely essential.

Copyright issues are now before the Congress. An eventual solution must address the "threshold problem" of reconciling the rights and interests of authors, publishers, and other providers of information—in order to encourage the continuing creation and dissemination of their intellectual work—with the interests of the user in obtaining ready access to these works. The judicially constructed doctrine of "fair use" provides only a partial answer to this problem, and new solutions must be worked out which will maintain the economic viability of publishing in the context of new technological means of reproduction and electronic distribution.

The Commission believes that it is essential that the needs of networking systems should be among those considered by the Congress in devising new statutory provisions, and that a sound and clear copyright policy be worked out which retains incentives for those who create and disseminate cultural and intellectual materials.

Workable means must also be found whereby the library community can satisfy its legal and moral obligations to the author and publisher while meeting its institutional responsi-

bilities to its patrons. In the meantime, the Commission encourages efforts to clarify the distinction between copying that does not require permission and compensation and that which does. It also encourages efforts to establish means by which permission, when required, be readily obtained. Finally, it encourages efforts to establish cooperative arrangements between libraries and publishers, possibly with the use of computer networks for processing, for obtaining permission or licenses and accounting for usage.

The Rationale for Federal Involvement

While the Federal Government appears to be broadly aware of the part played by libraries and information centers in national growth and economic productivity, the Commission believes that now is the time for the Federal Government, in cooperation with state and local governments, to treat information as a national resource. The Commission believes that the concept of a National Program for Library and Information Services is a highly appropriate focus for governmental action because the concept is designed to blend:

> user needs for information that are more pressing than ever before; with
>
> information technology that is nowhere more strongly developed than in the United States.

It should be recognized that the United States, though it may now have an unusual opportunity to plan its "information economy," is not alone in this position. Japan, West Germany and other countries have published national papers which attest to the importance of national information policies and networks. Norway has been working effectively for the last few years through its National Office for Research and Special Libraries, and in Great Britain, the British Library Board has made remarkable progress under its recent charter. If we, in this country, fail to link our own resources together nationally so that all can use them, we will be neglecting a very significant contribution that we can make to the quality of our life and the productivity of our people. We may also be missing the opportunity to join other nations in sharing resources on an international level.

The implementation of a workable national program requires close cooperation between the Federal Government and the states, between state and local governments, and between the Federal and state governments and the private sector. Such cooperation is most appropriately fostered through Federal legislation that would adopt as its prime philosophical goal equal opportunity of access to the nation's library and information services. Practically, it would seek better organization, development, coordination and management of the nation's libraries and information facilities and services.

Chapter II

Current Problems of Libraries

The previous section addressed the urgency of dealing with the problems of information in the United States and described the Federal Government's responsibility for coordinating a nationwide program which would provide, as an ideal goal, that every individual in the country have equal opportunity of access to the information and knowledge he needs.

Any program of this magnitude, however, requires that the current situation be assessed and understood before specific recommendations are made for future improvement.

There are almost 90,000 libraries in the United States today.[1] They vary in size and complexity from small village facilities with only a few shelves of books for recreational reading to large research libraries with magnificent collections on many subjects. Collectively, they are the foundation on which a nationwide information network should be built. The fact that problems and deficiencies exist in no way denigrates the successes and achievements of the past. On the contrary, the purpose of presenting problems and deficiencies is to take stock and to build on the best of what is available.

Public Libraries

Public libraries in the United States are facing new problems with respect to their internal operations. Financial support is not keeping pace with increasing costs; and the libraries are under increased pressure to give service in more breadth and depth to a wide range of users who vary in age, education and interests. They are limited in their ability to tap new technological sources of information, and they are constrained from upgrading their present manual methods to automated systems. In many instances, these problems have caused the public library to extend its normal resource sharing activity by affiliating with technical processing cooperatives, depending on larger libraries for backup, expanding interlibrary relationships, and joining public library systems and networks outside their local jurisdictions.

More than any other type of library, public libraries are close to the people in the communities in which they exist. Each is governed and managed by a board of trustees which reflects the interests and needs of the residents of the library's service area. The strength of the public library is its democracy, its service to all the people across age, ethnic, economic and cultural lines. It caters to children, to young adults, adults, and to senior citizens; and it is a major educational force in American life. Public libraries, including the smallest, are the backbone of the library system in America, and are the potential windows on any future nationwide network. Therefore, a great deal depends on the strength of their human and material resources and on their ability to undertake new programs of value to their constituents. Most public libraries are well below the minimum American Library Association standards and are inadequate to meet the information needs of the public. The public library, particularly in large metropolitan centers, is in a state of flux, and major changes in its funding and operating philosophy must occur, if it is to serve its community effectively in the future. Financial studies indicate that local sources of revenue alone will be insufficient to meet the public's demand for new programs, new construction, and new staff. Moreover, recent developments give disturbing evidence that public libraries are seriously threatened by deficit budgets resulting from cuts in municipal budgets or failure to get Federal revenue sharing funds. Balanced intergovernmental funding at the local, state, and Federal levels is essential to achieve the content and quality of public library services commensurate with the needs of modern society.[6]

Special Libraries and Information Centers

Special libraries and information centers make an important contribution by supplying information needed by Americans. Typically, they exist to serve the interests of the organizations of which they are a part, whether in the private or public sector.

Special libraries are found in businesses, industrial corporations, government agencies, museums, hospitals, newspapers, radio and television stations, and professional and trade associations. Some concentrate on specific materials, such as maps or pictures. They vary in size from large installations compar-

able to college libraries to one-person information services. Taken together, special libraries represent a collection of information resources which treat specialized subjects in depth, emphasize up-to-dateness in the information they collect and disseminate, provide a capability for quick response, and often use automated techniques for data storage and manipulation. Many special libraries in the United States have collections of material, or in-depth files of information, which are the most complete and the best organized of any resources on particular subjects in the country.

Because of their identification with their parent organizations, they may be less familiar to the general public than public and academic libraries. Lack of knowledge of the location and availability of these specific collections has been a barrier to their use beyond their own jurisdiction, as has the inclusion in them of certain materials proprietary to their respective organizations.

The Commission believes that a great many citizens with complex, work-related information problems are not now being served by such specialized information services. If meeting work-related information needs is as important as the Commission believes, then devising a mechanism by which selected holdings and services of special libraries can be made available to more people throughout the country would be extremely beneficial to the nation. Every effort must be made to include the resources of special libraries in the development of a nationwide network.

School Libraries and School Media Programs

School libraries, public and private, are important in the personal, intellectual and social development of the American child. They house the many materials required by the child for formal teaching-learning activities, and they represent the primary access point in school to which the child comes to find recorded knowledge. The school library often gives the child the first exposure to information resources and molds the child's information behavior for the future. Thus, the school library plays an essential part in readying the child for an adult role in society.

In addition to acquiring and making available books and

magazines, school libraries are also becoming media centers. Audiovisual materials of every description—slides, films, filmstrips, audio and video cassettes, etc.—plus the equipment on which they are played, are a new responsibility of the school library. Presently, school media programs daily serve over 40 million students, administrators, teachers and staff, and in some communities provide service to parents and the public as well.

Despite its fundamental role in educating the child and in shaping his future information habits, the school library is deficient in many ways. In most cases, school libraries are operated far below American Library Association (ALA)/ Association for Educational Communications and Technology (AECT) standards. Generally, they do not have enough books and audiovisual materials to support the varied facets of the curricula; many do not have professional personnel and must rely on volunteer assistance. Innercity schools are usually too crowded to even have space for a library. School librarians, where they exist, usually do not have any clerical help or supportive staff which is technically trained to take full advantage of the new educational technology.

The Commission endorses existing media standards and encourages all schools, both public and private, to work toward their implementation as soon as possible.[7]

Within recent years, school libraries have begun to devise new programs for sharing resources and coordinating media activities. Although many boards of education and school librarians see the potential benefits clearly, recent reductions in Federal funding have slowed down this trend. The proposed consolidation of categorical aid programs for elementary and secondary schools would have a further negative effect upon cooperative efforts. Local resources at the school library level will always be needed to serve the child and support formal education. For this reason, it is important to strengthen the school library and school media centers, so that they can meet existing standards and function effectively as integral components of the school environment. Access to the broad resources of a nationwide network would provide added value by increasing the child's opportunity for independent study and adding to his ability to become a literate, well-informed citizen, capable of lifelong learning in a rapidly changing world.

University and Research Libraries

The major research libraries in the country, both private and public, represent the bibliographic foundation of the nation's research effort. They participate actively every day in the distribution and exchange of books and other materials to sister institutions all over the country. Collectively, these institutions serve students, faculty, scholars, and researchers who are engaged in work in the sciences and the humanities, as well as the general public. Like the universities in which most of them are situated, research libraries are confronted today with rising costs, a rapidly changing set of educational objectives, and the impact of new technology. With the publishing rate increasing and the dollar shrinking in value, research libraries are finding it increasingly difficult to cope with their work loads and are unable to meet all of the varied demands placed on them. As a group, however, they have begun some cooperative efforts to improve their own operational efficiency (e.g., streamlining interlibrary loan procedures, standardizing approaches to computer use, developing coordinated and/or cooperative acquisition programs, and sharing resources). They have also defined a long-range program for collective action to help overcome existing problems by:

> introducing new means for extending access to recorded information;
>
> ensuring a natural capacity for continued development of distinctive collections and resources;
>
> initiating research and development activities of common concern;
>
> creating a national bibliographic data base in machine-readable form;
>
> developing a national program for the preservation of research materials.

Research libraries in the United States have combined resources of over two hundred million volumes. They are prepared to share these resources with others; indeed they are now sharing them through a growing system of interlibrary

lending. However, under the existing arrangements the larger libraries, which lend more volumes than they borrow, bear a disproportionate burden. While seeking to improve and extend such service, the research libraries need financial assistance to help them correct sharing imbalances and permit them to serve more users than just their primary clientele.

Many research libraries have collections of unique scope and quality. The maintenance, preservation, and development of these collections are responsibilities that must be shared if they are to continue to serve as a national resource. Research libraries must deal with the effect of rapidly rising costs upon all of the services they customarily provide. The present costs of supporting instruction and research are such that most libraries are without the necessary means to undertake more innovative and effective programs. If the Federal Government could provide sufficient research and development funds, it would permit these libraries to experiment with various forms of collective activities that would serve, not only local needs, but state, regional, and national needs as well.

Although the major research libraries have evolved independently, there is a trend today toward greater interdependence among them. Their combined resources represent an asset of great value to the nation, and the Commission believes it is in the best interests of the country to assist these important institutions in forming a stronger set of working relationships that will permit them to serve more, rather than fewer, people. Federal assistance in establishing centralized bibliographic services, in developing technical standards for computer and communication usage, and in helping to sustain a select number of unique collections, are among some of the actions the Federal Government can take toward making research libraries active participants in a nationwide network. While the Commission does not advocate total subsidization of collections by the Federal Government, it does see the need for developing criteria by which certain repositories of information, both publicly and privately supported, are partially nourished by the government in exchange for their wider availability to the general public.

The Commission believes that the problems facing the research libraries cannot be solved by the individual institutions acting alone, or through local or state jurisdictions alone. Some

combination of Federal, state, local and private support is needed if these institutions are to function most effectively.

Other Academic Libraries

With some exceptions, college and junior college libraries, both publicly and privately supported, are inadequate. In some cases, the libraries are so poorly housed and stocked that the quality of the instructional program is seriously impaired. Very often newer colleges enroll students before adequate library resources are on hand to support their studies. National standards which stipulate a minimum of three professionals—one for administrative duties; one for reference and circulation; and one for cataloging—are rarely met in the smaller colleges. As a result, many of these campuses lack the staff and library services they need and are unable to improve their situation.

After 1945, when college enrollments and budgets were on the rise, some colleges were able to expand their library programs. Those that did now have strong collections for their undergraduate users. Many other libraries, however, were less fortunate, and several constraints in the past few years have kept them from remedying the situation. Inflation, the information "explosion," changing curricula, decreasing enrollments, and decreasing budgets are some of the reasons for their slow growth. With acquisitions being curtailed, college libraries are in a declining situation, and their ability to be responsive to the demands of their students and faculty is diminishing. College and junior college libraries borrow more than they lend, and a national cooperative program would increase their ability to satisfy the specialized demands of their constituents.

State Library Agencies

State library agencies generally perform several major functions: (1) they serve as a regular library for state government employees; (2) they serve as a statewide resource center for interlibrary loan and reference; and (3) they provide a focal point within the state for long-range, statewide library planning and development.

During the past twenty years, Federal funding has enabled some states to enrich their library programs and even, in some instances to establish state library agencies where none existed before. However, the level of development among the fifty states still varies widely in terms of scope of responsibility, authority and organization. In some states, the state library agency is an adjunct of the State Education Department, and, in other states, it is an independent agency or separate department. Support of state library agencies varies considerably. Some states provide strong support in terms of basic budgets and state aid for public libraries and multitype library cooperation, while others provide minimal support to the state library agency and only token assistance to statewide programs.

Thus, state library agencies are struggling to establish a new functional role in the library community that will change their image from that of an extension service to public libraries (an operating responsibility) to one of leadership in the evolution of library systems and information networks (a policy-making and coordinating responsibility).

Public libraries, in some states, have led the way toward system and network development. Today, however, the state library agency must assume the responsibility as the coordinator of such development for all types of libraries and information activities within the state. Sustained state and Federal funding will enable the state library agency to develop new referral patterns, utilize new technology, and create new interface activities to ensure that the total library and information resources of the state are used effectively and efficiently.

Federal Libraries

Within the Federal establishment the United States government operates more than 2,300 libraries which support specific Federal statutory missions and have, as a consequence, accumulated specialized resources of major significance. In particular, the Library of Congress, the National Library of Medicine, and the National Agricultural Library possess important national collections.

Although some informal cooperative efforts among Federal libraries do exist, they are not yet organized as a formal network. However, Federal librarians meet periodically to discuss programs of common interest, and, to a limited extent, they share

resources and engage in cooperative education and training programs. Through the Federal Library Committee, the Federal library community is striving to achieve greater coordination. A proposal to form a Federal library network which would function as a major component of a national information network is presently under study by the Federal Library Committee. The Federal Library Committee was established in March 1965 at the initiative of the Library of Congress, with the cooperation of the former Bureau of the Budget, to improve coordination and planning among research libraries of the Federal Government, so that common problems might be identified, solutions sought, and services to the government and the nation improved. Currently, the primary responsibility of most Federal libraries is to serve their departmental personnel. Most Federal libraries do recognize the value of serving the general public, but few can do so because of budgetary and administrative constraints. A serious need exists, therefore, to promote their use more widely. To enable more Federal libraries to make their resources available to the public will require specific authorizing legislation or specific fund allocations.

Many Federal libraries do not enjoy the full support of their agency administrators. The latter frequently consider libraries to be part of overhead—no different from such categories as supply, mailroom, inventory, etc. In an effort to change this attitude, some libraries have changed their name from "library" to "information center," hoping this new phrase will more aptly convey the substantive character of their function. Federal libraries need to be strengthened in many ways to enable them to serve a larger section of the population.

An entirely different set of problems besets another segment of the Federal information community. This is the group of activities established in various departments to maintain bibliographic control over, and provide dissemination of technical reports. The major organizations in this field include: the National Technical Information Service (NTIS); the Defense Documentation Center (DDC); the NASA Scientific and Technical Information Facility; and the Educational Resources Information Center (ERIC). Among these information services the government has placed under control several million technical reports and has made copies of these reports available to large constituencies. Unfortunately, each started as a mis-

sion-oriented operation, concerned with a limited body of information and with a limited clientele. This is reflected in the substantial differences in their operations. The results have been confusion, frequent duplication, and, not surprisingly, underutilization. The development of common standards, consistent policy, and greater coordination in this area is crucial to a truly effective National Program.

At present, there is no governmentwide policy concerning the process by which new Federal libraries and information services are established. As a result, duplicate collections can easily be built. To avoid such costly errors, all agencies should be required to consider alternatives like: (1) contracting for information services with an existing Federal information service or library; or (2) contracting with the private sector for such services; or (3) developing network arrangements in the public and private sectors to satisfy the new need for information.

It has been suggested that government agencies should not initiate information services which can be provided by the private sector unless the cost to the government would be significantly reduced or unless the services of the private sector are unable to meet the government's specifications for timeliness, quality and continuity. The Commission is keenly aware of the need to establish government policy with respect to the roles to be assumed by the public and the private sectors in the distribution of published materials gathered through government programs. Both sectors have important roles to play, and means must be found which will encourage them to be mutually reinforcing rather than competitive. Because information generated by the government is in the public domain, mechanisms are required which will encourage the private sector to cooperate with the government for efficient and effective marketing and distribution of information collected or generated by the government.

General Observations

From testimony taken at the Commission's regional hearings, from relevant research studies and reports, and from conferences with professional and lay groups, a number of observations can be made concerning some of the major problems besetting the nation's libraries. The list is not all-inclusive, but

it represents the principal concerns facing the field, as expressed by numerous persons coming before the Commission.

(1) The growth of libraries in the United States has been fragmented and uneven. They evolved independently and do not presently constitute an orderly national system. The level of library and information service in the United States is below the American Library Association's standards in most parts of the country. Certain segments of the population are better served than others. Library development is often unsystematic and unintegrated. This fragmented development has resulted in waste, duplication, and the inefficient use of the total national knowledge resource. Moreover, if libraries continue to develop as they are now—unrelated to one another, a miscellany of informal cooperative arrangements, lacking common standards and compatibility, etc.—in a few years time, it may no longer be possible to organize them into a cohesive national system.

(2) Library and other information resources in the United States are unevenly distributed, a fact which stems from the uneven population distribution and diverse tax structures in the country. While some people in the United States have easy access to rich resources, others are deprived of even the most basic materials. Financial support of libraries varies widely. Thirteen states, for example, have no state aid programs for public libraries, and many communities throughout the country lack the most elementary form of basic library service. According to the 1968 Report of the National Advisory Commission on Libraries, "some 20 million Americans, largely in rural areas, have no public library service at all, and some 10 million more have access only to very small libraries with very inadequate collections and little or no service from professional librarians." Although the population which has access to library services today represents a substantial improvement over the situation which existed thirty years earlier, the service outside urban centers is usually inadequate.

(3) There is a critical need to identify and address the problems of those without even the most basic information services and those who are being served only marginally.

(4) With the increase in the amount of material being pub-

lished, the emergence of new audiovisual materials and computer data banks, the mobility and specialized needs of constituents, and the rising cost of personal services and materials has come the realization that there is a limit to self-sufficiency. Not even the largest libraries can afford the cost of acquiring all of the books and other relevant information needed by their constituents.

(5) Special libraries with information resources for work-related needs exist throughout the United States, but at present they serve only a limited clientele.

(6) Greater collaboration should be developed between libraries and the commercial and other private sector distributors of the newer information services when the results are in the public interest. In general, users are unaware of the many specialized information services and computer information retrieval systems available for their use.

(7) Funding for most library and information services at every level—local, state, multistate, and Federal—is inadequate. A major change in the Federal investment in library and information services is needed to ensure systematic development through funding formulas and arrangements that are mutually reinforcing at every level.

(8) New Federal and state legislation is needed which will give local libraries the incentive actively to join larger systems of service outside their immediate jurisdictions. Without incentive and assistance, it is unlikely that local jurisdictions will allocate funds to provide extra-jurisdictional services through state, regional or national networks.

Not all library problems are included in the above list, but it does reflect some of the major deficiencies which need correction.

Chapter III

Some Concerns of the Private Sector

The term "private sector" as used here includes libraries and other organizations outside of government which are not tax supported. Libraries in the private sector were discussed in Chapter II. This Chapter concentrates on organizations in the for-profit and not-for-profit parts of the private sector which are engaged in the production, processing, and distribution of information. Some of these are commercial companies, while others are not-for-profit scientific and professional societies.

Publishing and abstracting and indexing organizations have long produced, marketed, and sold printed materials and bibliographic access tools to individuals, libraries, and other institutions. These organizations continue to perform vital functions in information transfer. However, with new developments in computers, telecommunications, and image technology, and with the growing importance of nonprint materials, many new for-profit companies have also begun to contribute to the flow of information goods and services. This loose grouping of publishing and information companies has come to be known as the "information industry." While many of its current services are relatively experimental, there is an indication that the information industry will exert increased influence on the nation's information services in the years ahead.

The increased pace of technological change, the growth in media, the computer, and advancements in communications and micrographics have all combined to produce vast amounts of information at an unprecedented rate; information is required by more people and groups than ever before. Some of this information is available from public sources; other information is not. However, the information itself knows no jurisdictional boundaries and to the user, information is information. He or she is hardly concerned with the distinction between a public or a private source. The Commission con-

siders it crucial that information activities in the public and private sectors operate in harmony with one another and in consonance with the national interest. Precedent already exists for incorporating private sector resources and services into the functional information structure of the country. For example, the National Library of Medicine has developed a nationwide biomedical information network which not only includes, but is also dependent upon, the private sector for its successful implementation.

Commercial firms engaged in information activities operate independently of each other, in accordance with the custom in the for-profit sector of the economy and in keeping with the requirements of Federal antitrust regulations. Thus, the opportunity for coordinated development, such as is apparent in library consortia and networking activities, is not readily available in this part of the private sector. Some degree of coordination does exist through trade and professional associations.

The principal problems of publishers and information companies and other information organizations were presented to the Commission in a series of discussions and seminars held with representative groups of the for-profit and not-for-profit part of the private sector. The economic interdependence of those who create and publish knowledge and those who receive and use it became obvious very quickly, and the Commission is aware that, in fashioning a new National Program, it must remain sensitive to this interface.

The Commission also recognizes that a program as broad as the National Program cannot, and indeed should not, be developed and operated entirely out of Federal tax monies, and that many information services addressed to specific disciplines and to specialized user clienteles should continue to be paid for chiefly by those who benefit from them, rather than by the taxpayer at large. The initiatives taken in the private sector to develop and operate new user-supported services are a valuable contribution to the National Program, which of necessity must focus the major part of its attention on broader user clienteles and less specialized information services.

Three areas are of major concern to much of the for-profit part of the private sector:

Economic Viability

In the for-profit part of the private sector, the creation of published materials and related services are regulated by supply and demand. Profit motivates the producer to keep his manufacturing costs down, to seek ways of expanding his sales, and, at the same time, to continually probe the marketplace for new products and services that are needed. Ultimately, the ability to operate profitably depends on user satisfaction and consequent demands. If an enterprise is able to operate profitably, then it can reinvest capital and accept new risks.

In the not-for-profit part of the private sector, economic viability is equally important. The societies and professional organizations involved serve disciplines and other areas whose vital needs continue to increase. However, unlike for-profit companies, these services cannot seek profit to provide reserves for progress and must strive, through quality products, for a close balance between costs and revenues.

The late 1960's saw a rapid growth in the number of library consortia, a primary motive being to share resources as a means of saving money, expanding user services, or both. In the 1970's, library systems and networks are being planned and implemented that take advantage of opportunities provided by new technology. The private sector recognizes the need for and value of better articulated library systems, but is concerned about the potential threat of some library systems and networks to its own economic well-being.

Publishing and information services maintain that sharing resources through networks implies a net loss in their potential sales. Librarians, on the other hand, disagree with this thesis, insisting that the same volume of material will always be needed to satisfy local needs, and that networks will lead to greater information use and, hence, to increased sales.

The producers of creative works and related information and the libraries and their users, who are the consumers of this information, cannot exist without each other. A vigorous national library system is dependent upon a vigorous private sector to help support and sustain it. The Commission recognizes that sound economic growth in the private sector is essential to the development of the National Program. Precautions should therefore, be taken to protect and safeguard

the delicate economic balance that exists between producer and consumer and to encourage collaboration in the national interest.

Relationship to the Federal Government

The Federal Government is the largest single producer and disseminator of information in the United States. Each year the Federal agencies spend billions of dollars on projects most, if not all, of which lead to new information of benefit to the American public. At present, this information is channeled to the public through the Government Printing Office, the depository system, the National Technical Information Service, and through a variety of separate formal and informal arrangements made by the agencies. Most of this information appears in print but, in recent years, it has begun appearing in computer tape format as well.

In addition to its role as printer and distributor, the Federal Government also operates information services intended to support the mission-oriented agencies and, in some instances, to serve the needs of the general public. Not all Federal activities of this kind are administered by Federal employees. Some agencies contract with private firms to publish and market their works; some agencies hire commercial firms to operate their information centers; still others encourage the private sector to repackage and/or distribute their information products so as to widen the range of utilization.

The diversity of government policies causes confusion and, in some cases, alarm in the private sector. The question is whether the Federal Government or the private sector should publish and disseminate information produced with public funds. The private sector sees a positive impact on the national economy and on the general tax base, if its components are permitted to compete for the publication of products and services derived fro. . Federal agency programs. It further maintains that publication by the private sector could save the government substantial printing and distribution costs and provide products of better quality that can be marketed effectively. On the other hand, the Federal Government has a public responsibility, and many agencies have statutory missions, to publish and disseminate information produced with public funds for public benefit and with assured continuity.

There is no statute on the books today which prescribes policies or guidelines for the individual Federal agencies to follow with respect to the use of the private sector in the dissemination of the information they produce. Nor is there a focal point of executive responsibility in government to which private organizations or government agencies can turn for policy clarification. The Commission believes that such policy guidelines are needed.

Copyright

As mentioned in Chapter I, copyright continues to be an unsolved problem for both the producers and the consumers of copyrighted information. For the past several years, attempts have been made to narrow the area of disagreement in an effort to find a legally sound and equitable solution. This search continues today. In 1974, a new round of discussions among representatives of authors, publishers, and librarians was initiated under the auspices of the Commission and the Office of the Register of Copyrights in the Library of Congress. The object was to consider the proposed revisions of the copyright law as they affect libraries, authors, and publishers. In February 1975, the Supreme Court heard and handed down a split 4–4 decision in the *Williams and Wilkins* case. The result affirmed a lower court conclusion that the photocopying practices of the National Library of Medicine and the National Institutes of Health Library did not constitute an infringement of the copyright law. No written opinions were rendered by the Supreme Court.

The statutory basis of contemporary copyright practice dates from 1909, and the law has not undergone major revision since that time. Rapid technological advances, first in the photocopying area, and later, in computers, communications, and micrographics, have combined to create economic and legal uncertainties about the future process of information exchange.

The Commission has encouraged the private sector and the library community to find some basis for an equitable solution to the problems created by these developments. Congressional committees in both the House and Senate have also recommended negotiations so that the interested parties themselves can formulate guidelines for library photocopying.

In Summary

The Commission draws the following conclusions about this part of the private sector: (1) It is an indispensable part of the web of information activities of the nation; (2) Its work directly and indirectly affects all elements of society; (3) It shares many interests in common with the library community; and (4) It has an important role to play in the development of the National Program.

Chapter IV

The Trend Toward Cooperative Action

Present Networking Activities

Today's libraries generally have insufficient resources to meet the needs of the times. The major problems facing them were discussed in Chapter II. Briefly, they were:

the increased cost of acquiring library materials and organizing them for use;

the difficulty of recruiting and compensating skilled personnel for these tasks, especially when the range of languages, subjects, and services is great;

the growth of knowledge, with the consequent demands, particularly on academic libraries, for a wide range of specialized materials;

the varying levels of resources and funding abilities in each state;

the cost of storing infrequently-used materials that accumulate when a library tries to be self-sufficient; and

the requirement to serve constituencies that are not now being served.

These problems are not new, but they have become more serious over the years and have, in the last few years, reached critical proportions.

No one library can afford the cost of acquiring and servicing all the books, journals, microforms, computer data bases, videotapes, audiovisual materials, and other information necessary

to satisfy both the highly-sophisticated user and the average person yearning for knowledge to meet today's challenges.

Libraries have long realized that service to their patrons can be markedly improved through "resource sharing" practices which allow any one library to augment its holdings by gaining access, through interlibrary loans, to the holdings of neighboring libraries. Many years ago, this kind of activity was called "library cooperation." The union catalog, a file listing holdings of cooperating libraries, has been one of several devices used by libraries to facilitate the sharing of resources.

During recent years, encouraged by Federal and state leadership and funding, and by the prospect of providing better service, libraries across the country began to develop new kinds of organizational relationships to increase the sharing of resources. In some cases, such organizations have been formed with the major part of their support coming from the participating institutions, supplemented by grants from the public sector. These cooperative programs are now variously referred to as "library systems," "library consortia," or "library networks." Some consist merely of informal, mutual agreements to share materials. A large number are bound by formal contracts and use conventional communication means, such as the telephone and the teletype; the number of those that utilize computers and telecommunications is growing rapidly.

A number of Federal institutions, like the National Library of Medicine, have become major centers for the design and development of computerized communication services for particular constituencies. They have moved ahead to form local and regional networking arrangements which conjoin several institutions in a formal organizational pattern. Equally extensive information retrieval (IR) service networks embracing several hundred terminal sites have been established in the private sector by several commercial firms. Such networking arrangements not only give each participant access to data created in other centers, but they also provide the means for initiating other cooperative services.

Typical of existing library networks are those formed by the libraries of the metropolitan cities. Because the great bulk of American's library resources are located in metropolitan areas, and because many of these areas cross state boundaries, some metropolitan cities have initiated cooperative library network programs independently. Some have been aided by support

directly from the states concerned, but others were started as a result of receiving planning grants directly from the Department of Housing and Urban Development (HUD). Since not all networks may originate as part of a statewide program, the National Program should include provisions for channeling funding to multistate groups which do not fit the state pattern and which are capable of providing broad cooperative programs.

Intrastate networks are being planned, or are in operation, in California, Illinois, Iowa, Maryland, Minnesota, New Jersey, New York, Ohio, Washington, Wisconsin, and in other states. In the middle 1960's, a library network was formed which crossed state lines: The New England Library Information Network (NELINET). Operating as a program of the New England Board of Higher Education, the six state universities agreed to develop library network services. Other multistate groups such as the Southwest Library Interstate Cooperative Endeavor (SLICE) and the Southeastern Library Network (SOLINET) have formed to carry out prescribed functions together. Many states are already involved in multistate library activities. Each multistate group is in a different level of development and funding, but all share a common set of goals: to provide those library and information services which can be delivered more effectively by a relatively large-scale regional approach than by either state or Federal agencies.

Recent recommendations in a report undertaken for the Commission suggest that by building upon multistate regional resources and existing organizations, many of the nation's bibliographic resources can be conserved and, at the same time, reach out through modern network technology to a greater number of citizens than is now the case using relatively primitive, isolated, and disjointed technology. Many of the emerging regional groups, as well as some states, realize the benefits and responsibilities inherent in network supported interdependency, and this is fostering a new approach to library and information service.

In addition to multistate library organizations and networks, there are still other activities that use commercial communication networks to facilitate the distribution and communication of bibliographic data to libraries in any state. The most active of these is the Ohio College Library Center (OCLC), a nonprofit institution, which today serves over 600 library

terminals from a single computer in Columbus, Ohio. This system allows participants to access a large data base, containing over one-and-a-half million bibliographic records, to produce catalog records and cards for their own holdings, or, if there is no existing record, to enter the data to establish a record (which can then be used by others). Location information is included in each record, so that the file also constitutes a union catalog. The Center has recently added remote label production, accession lists, and serials control to its services, and future plans include: subject search; direct user access; circulation control; and collection of management information. Also, a commercial firm makes available a bibliographic service for libraries. Both organizations provide for service charges according to a fee schedule, and both make active use of the Machine Readable Cataloging (MARC) computer tapes prepared by the Library of Congress. At the state level, the state of Washington uses a cataloging data base as the foundation for an automated network connecting all libraries in the state. On-line development is expected to be completed by 1976. In addition to supplying centralized cataloging for the libraries of the system, computers will also produce processing kits (cards, labels, etc.) as well as book catalogs. Development of acquisitions, circulation, and serials modules is being planned for the 1975–77 biennium at the close of which all state-supported institutions and major public libraries will be on-line to the central data base.

Although none of the existing library networks has reached full potential, a few have demonstrated the viability of resource sharing through electronic networking and have shown some of the benefits that can be derived from speedy electronic communication. Library functions which can obviously benefit from improved interlibrary communication are interlibrary lending, coordinated acquisition program, and shared cataloging.

The primary source of centralized cataloging data in the United States is the Library of Congress, which makes available, for a fraction of the cost of original cataloging, printed catalog cards of any of the titles it has processed since the turn of the century. Shared cataloging, in the form of printed cards with common bibliographic information, is also available from commercial companies.

In the area of reference services, some consortia, as well as many individual libraries, are using interactive computer time-sharing systems for citation and data retrieval, while still others are investigating future use of electronic communications as an alternative to mail, for the routing of larger volumes of textual material from library to library.

Some of today's statewide networks include only one type of library, e.g., public or college; others, called "multitype" or "intertype" involve all types of libraries and information centers. Their administrative structures vary, as do their services and membership. The degree of formality in a statewide network appears to be a function of size. Strong statewide networks require dependable and sustained funding, a legal base, a willingness on the part of the members to yield some local autonomy, a structure that will survive changes in personnel, and provision for growth and change. The impediments to success are preoccupation with questions of control and organization, and impermanent funding mechanisms. Workshops and continuing education programs in organization and management help to bring about understanding of the human and administrative problems; the National Program would help to provide continuity and stability to such efforts.

While many statewide networks are considered successful on local, state, and regional levels, most are proceeding without plans for an eventual tie-in to a nationwide network. Statewide networks are the cornerstones on which a nationwide network will eventually be built, and it is only through careful planning toward a nationwide system than they can develop in harmony. Interstate compatibility is mandatory, if statewide networks are to be economical and efficient in the context of a national network.

It should be emphasized that NCLIS regards the self-generating and on-going trend toward cooperative statewide and multistate networks as a movement which should be encouraged and abetted with Federal support. Although there is no standard by which to measure the "value" of increased access to information that a network may provide, it seems clear that economic, educational, and recreational benefits will accrue in due course both to the individual and to the country as a whole when a nationwide network is implemented.

Barriers to Cooperative Action

In viewing the environment in which a nationwide network could become a reality, the Commission recognizes the following barriers and impediments which will have to be overcome to achieve the increased cooperation required to implement a nationwide network:

(1) The information community in the public and private sectors is growing more diverse, and the component parts—the libraries, the publishing industry, the indexing and abstracting services, the education community, and the various government agencies—have had little or no experience in working together toward a common national goal. The Commission recognizes that the success of any comprehensive nationwide program must, therefore, have the fullest involvement and cooperation of all the elements of the information community. The Commission also regards it as important that the functions and relationships of all segments of this community be carefully studied and integrated into the program. Only if the total information community is joined together by a common objective will it be possible for the nation to attack the pressing information problems which confront it.

(2) State, local, institutional, and private funding for libraries and information activities is unstable and insufficient. Funding is not planned to foster interlibrary cooperation in a major way, and, consequently, no mechanism exists whereby local, state, and Federal funds can be made mutually reinforcing for a cooperative national purpose.

(3) Jurisdictional problems are impediments. Although information and knowledge respect no geographic boundaries, and user needs are as various as human concerns and interests can make them, the provision of information service in many localities is still limited by the taxes supporting a particular jurisdiction. Traditional funding patterns will need to be changed to make them equally supportive of local *and* nationwide objectives.

(4) No national guidelines are available to ensure the development of compatible, statewide and multistate network development. Unless administrative guidelines of this kind are formulated soon, there is danger that a heterogeneous group of networks will emerge which may be difficult and

expensive to connect, or which may never be connected at all.

(5) The rich and specialized resources of the Federal libraries, nongovernmental special libraries, research libraries and information centers must become an integral part of the nationwide network. Such integration will require that these institutions adopt a more open policy toward serving the general public in addition to their respective organizations, and a willingness to form or join library and information service networks.

(6) Professional librarians have concerns about the use of new technology. The computer and other electronic information systems have made the average librarian and information specialist apprehensive about the loss of personal contact with the patron. This concern is reflected in the caution with which some libraries throughout the country have moved to convert from traditional methods to machine methods. Such conversion, in large part, implies a reallocation of personnel, and entails a new and unfamiliar approach to library management. Mainly, the problem is not technical but attitudinal. Technology also implies an entirely new conception of the library and its services. It requires the librarian to remold his thinking, to be willing to change his notion of librarianship, and to ". . . rise above the computer, above the engineer, above the systems analyst . . ." and thereby push the profession into a position of real social utility."

(7) The human resources required to plan, develop and operate the nation's libraries and information centers are, of course, the most important elements in today's systems, as well as in tomorrow's networks. Because future systems are not yet determined, the quantity and quality of human resources which will be needed to meet future demands cannot be assessed with certainty. It is evident, however, that new approaches to library and information science education will be necessary, if professionals, paraprofessionals, and other personnel are to be equipped to function in nontraditional ways. Although many library operations will, undoubtedly, continue to be performed in traditional ways, it is becoming progressively more important for librarians to be acquainted with the new technology. Schools of library and information science are in the process of re-

evaluating their curricula in order to accommodate innovative programs. Today, however, many of our educational institutions are not turning out professionals who are technically equipped to deal with nonprint materials, or with computer and communications technologies.

(8) Except for the Library of Congress, the United States does not possess an official national bibliographic center to coordinate the processing and distribution of standard bibliographic records for the use of all libraries and information centers. The current complex pattern of bibliographic services consists of a multiplicity of organizations, in the public and private sectors, providing a variety of products and services. National bibliographic control is needed to identify items of recorded information in all media, to provide intellectual access to each such item of information, and to standardize the processing and communication of relevant data.

(9) One of the chief obstacles to sharing resources is the lack of public knowledge about the location of available resources. Not only must the public be made aware that library networks and commercial information services exist, but every potential user must be instilled with the desire to learn, to read, to find out, and to know. Every technique known to the teaching profession and to the television, radio, and newspaper media should be used to educate the users, at every age level, about the location of library and information services available to serve their needs.

The barriers and problems recounted above are, in part, a result of the independent growth which has characterized the development of libraries and information services in this country. To erase barriers to cooperative action will call for a major new program which is built on the concept of national cooperation. A new program will require cooperative action among libraries and also call for cooperative action between the distributors and users of information. The endurance of the information cycle, from production to use, depends on viable economic relationships. The next chapter addresses these issues and sets forth the outline of a proposed National Program.

Chapter V

The Recommended National Program

At present there is no national program of library and information service for the development of Federal, state and local library, and other information activities in the United States. As a result, existing programs are generally unrelated to one another and continue to develop throughout the country in uncoordinated ways. In some cases, this tends to lead to incompatible systems and counterproductive activities. For this reason, the Commission believes the time has come to ensure that future development of the nation's information resources will occur in a cohesive manner according to a national plan.

The National Program proposed by the Commission represents an overall structure within which current deficiencies can be corrected and future requirements can be addressed. The program is designed to be evolutionary and does not pretend to solve all of the problems besetting today's library and information world, but it does set forth certain objectives which can guide its development and improvement in the years ahead.

The National Commission is firmly committed to the continuation of categorical aid as part of the National Program. Although past Federal funding achieved many worthwhile objectives, the results fell short of the original goals, and much more remains to be done. The proposed National Program would coordinate and reinforce all Federal efforts to support local and specialized services and, at the same time, provide a national framework for planned, systematic growth of library and information services in the public and private sector.

Program Objectives

Objective 1. Ensure that basic minimums of library and information services adequate to meet the needs of all local communities are satisfied.

Local libraries and information centers, whether large, medium, or small, and whether public, academic, or school, are vital links with the people. Local libraries are the first place in the community where most people generally go to find information. Unless local systems, therefore, are strong, and are supported by continuing, aggressive, and dynamic leadership, they will be ineffective members in any program of nationwide scope. The sharing of resources is no remedy if resources are inadequate at the local level. Strong systems need strong components. It is, therefore, imperative that the National Program provide that local communities attain certain basic levels of service and materials, and that their human resources are also strengthened. Only when local resources have been strengthened can resource sharing and other joint efforts lead to successful networking arrangements at state and national levels. Major existing legislation relating to libraries and education for librarianship (Library Services and Construction Act, Titles I, II, III and IV; Elementary and Secondary Education Act, Title II; Higher Education Act, Title II; and the Medical Library Act of 1974) has accomplished a great deal, but it is the Commission's view that Federal support in the form of categorical aid is still needed, and that every effort should be made to expand and retain it. A revised and strengthened LSCA is a major priority for 1976.

Objective 2. Provide adequate special services to special constituencies, including the unserved.

There are large user constituencies which require services and materials of a specialized sort. Such groups include the poor, the illiterate, the blind, the visually and physically handicapped, the ethnic minorities, American Indians on reservations, the very young, senior citizens, inner city youths, migrant workers, the institutionalized, and many other parts of our society. The Commission believes that all people have a "right to read" and that the Federal Government has a responsibility to help them.

In accordance with the Commission's goal that every individual in the United States must, through the local community, be given equal opportunity of access to the resources needed at the time they are needed, the National Program must ensure that those people requiring specialized services get them.

A large segment of the population is economically disadvantaged. Many cannot read. Yet, libraries could change in such ways as to help them through outreach programs, and could serve as sources of information on welfare, health, employment, education, literacy, and other social problems.

The number of people belonging to ethnic minorities in this country is very large—about 40 million Black Americans, Asian Americans, and Hispanic Americans. Many of these people have no library or information services at all, and where such services exist, the personnel who operate them are sometimes perceived as insensitive and unresponsive.

The more than six million blind and physically handicapped persons in the United States need materials in a special format. The National Commission commends the Library of Congress, Division for the Blind and Physically Handicapped, for its dedicated work in this area, and regards it as critical that its work be continued and expanded. Specifically, the Commission recommends that added efforts be made to seek out and serve those eligible for the service; utilize more effectively the limited resources available, considering the expense and time consumed in the production of embossed and recorded books and periodicals; increase the quantity and quality of available materials, taking advantage insofar as possible of new technological advances in the production of braille and music braille; and implement plans for the computerized National Union Catalog of embossed and recorded materials. Attention should also be directed toward the continued increase in the number of appropriate circulation outlets, so that handicapped persons may be served more adequately by their local libraries; further development of the multistate service, centralized cataloging, storage and distribution centers, development of more efficient interlibrary loan techniques; and the promotion of cooperation and communication among participating libraries and agencies.

The Commission is aware of and very much concerned about the unique library and information needs of the American Indian and the responsibility of the Federal Government toward meeting these needs. In its treaties with Indian tribes, the Federal Government undertook an obligation to provide adequate education to Indians on their reservations, which includes a concomitant obligation to provide complementary library materials and services. There are still many people on reservations who speak or understand English with difficulty.

The provision of bilingual materials is, therefore, very important. Equally important is the need for suitable library training programs for Indians at both the professional and paraprofessional levels. Libraries must be the institutions which provide information to the community, and Indians need Indians to serve them. Because American Indians pay no taxes while living on the reservation, they do not qualify for matching funds, and have remained outside the mainstream of past Federal funding for libraries. The new National Program must provide a workable base for assistance and ensure that Indian reservations are tied into the proposed nationwide network.

The Commission believes that service to specialized constituencies ranks very high in the scale of priorities for the National Program. Every person in America, regardless of his or her economic, cultural or social situation, has the same right of access to knowledge. New legislation would underscore this principle and provide a channel for assessing the requirements of special constituencies and taking appropriate action.

Objective 3. Strengthen existing statewide resources and systems.

Not all states are at the same level of library and information service development. Some states have well-developed programs; others function at less-well developed levels; and still others have no statewide programs at all. Because the states are the essential building blocks in any national information system, it is important that they all attain minimum levels of proficiency and strength as parts of a nationwide program.

Most states do not yet provide sufficient funding to their library and other information activities. The proposed National Program of Library and Information Services would provide formula-matched funds to the states to help them attain certain minimum requirements with respect to materials, services, and staffing. In time this should enable their libraries, at the local level, to satisfy the vast majority of everyday information demands generated by the people within the state. The National Program would also assist the states in forming intrastate networks compatible with the one constructed for national use. The state networks would provide local libraries access to required materials in other parts of the state or out of

state. They would also organize means of delivering the desired materials to the patron (mail, freight, delivery truck, facsimile, cable TV, etc.).

It is the view of the National Commission that any new National Program should rest on the understanding that the Federal Government would fund those aspects of the National Program that are of common concern nationally, in return for a commitment on the part of the states to accept, in cooperation with the local governments, a fair share of the responsibility for funding libraries within their own jurisdictions. Federal legislation would spell out the obligations to be assumed by the states when joining the National Program, describe the services they would receive in return, and set forth general matching fund criteria for development of the intrastate parts of the National Program. (cf. Responsibilities of the State Governments, page 61).

Objective 4. Ensure basic and continuing education of personnel essential to the implementation of a National Program.

The development of adequate human resources for library and information service has been one of the Commission's concerns since its inception. In its 1971–1972 Annual Report, the Commission made the point as follows: "It is important that those giving service in libraries and information centers be qualified for their work. Poor help in identifying and locating information is bad for the user and will ultimately damage the organization that provides the inadequate service."

The successful implementation of an all-encompassing nationwide program depends largely on whether or not the staffing and resource needs of libraries and information centers are adequately met. The program must have people in it who are competent, sensitive to user needs, and able to employ new techniques. This is especially true in service to minorities, the disadvantaged, those with a language other than English spoken in the home, the homebound, the blind, and the physically handicapped. The quality of training, the appropriateness of that training to existing and changing conditions, and the attitudes of those who serve can make or break programs and provide satisfaction or discontent among those served.

The domain of library and information science is inter-

disciplinary. This implies that the personnel required to manage a National Program of Library and Information Services should be equipped, technically and substantively, to cope with all aspects of planning and implementation. Well-trained professionals are needed in areas such as management, planning and evaluation, automation, media services, and outreach programs.

Schools of library and information science are aware of the need to redefine their educational programs, in order to attract exceptionally-qualified students and build the leadership needed to remold traditional librarianship into a dynamic profession. However, no concerted effort has yet been made to bring this about.

It is essential, therefore, that the National Program give consideration to both basic and continuing education of personnel at all levels, professional and paraprofessional. A new approach to educational curricula will be needed in library and information science if librarians, information scientists, library technicians, and auxiliary personnel are to learn to function as an interdisciplinary team. Expressions of need for an innovative approach, preferably an interdisciplinary one, have come from many national, regional and state professional associations, schools of library and information science, state and national libraries, and from librarians, information specialists, and their employers. An interdisciplinary approach to education does not necessarily imply that every librarian must immediately become a computer scientist or vice versa. There are many library operations that can and should continue to be performed in traditional ways. It is essential, however, that all librarians understand the potentials of the new technologies; and this is especially true for those librarians who serve the user directly. Those in contact with the user must understand the capabilities of the statewide or nationwide network with which they are working.

To achieve a technological and organizational upgrading of libraries and information centers will require new approaches to recruitment, personnel development, continuing education, technical training, trustee orientation, and other matters relating to human resources. The Federal Government has a primary responsibility to ensure that all those who will participate in the National Program have adequate opportunity to be educationally equipped and trained for their jobs. A

Federally-funded program of fellowships and training institutes is basic to the fulfillment of this responsibility.

Objective 5. Coordinate existing Federal programs of library and information service.

The Commission recognizes that existing library and information service programs in operation by the Federal Government—such as those in the Library of Congress, the National Library of Medicine, the National Agricultural Library, and the 2,300 or more Federal libraries and information centers—constitute invaluable operating programs that are of great significance to the proposed National Program. Many of these programs are already performing centralized bibliographical, reference, and other services which are of benefit to all libraries in the country. The National Program will make use of these national services, and must ensure that they are well coordinated and continued at levels strong enough to fully satisfy the national need. These existing Federal programs would become critically important elements in the National Program, even though they remain administratively autonomous.

As stated earlier (cf. Objective 1, page 39), the Commission believes that existing categorical aid programs should continue to be administered by those mission-oriented agencies which are directly concerned with the substance of a particular problem area. The Commission believes that the variety and extent of operating and grant programs in the Federal Government are so great that any attempt to centralize them into a single agency might be not only impractical, but also unwise. Instead, the Commission proposes to involve the best resources and the best capabilities of all of the agencies of the government which can make a significant contribution to the National Program.

Public Law 91–345, establishing the National Commission on Libraries and Information Science, assigns to it the "primary responsibility for developing and recommending overall plans, and advising the appropriate governments and agencies on . . . policy" with respect to meeting the library and information service needs of the people of the United States. In the proposed National Program, the Commission would exercise this responsibility through the development of national policy, coordination of existing programs, and creation of new programs as appropriate.

Objective 6. Encourage the private sector (comprising organizations which are not directly tax-supported) to become an active partner in the development of the National Program.

The private sector has long been involved in using and providing information, and has built up a large body of expertise in handling information. In recent years it has initiated many new types of information services. Two distinct components of this sector can be identified as having the capacity to make special contributions to the National Program: the special libraries and information centers (in both for-profit and not-for-profit organizations); and various service organizations.

Special libraries and information centers in the private sector in business and industry, in museums and hospitals, and in other organizations of all kinds, often have important collections of material and the capability of providing quick, up-to-date analytical service for their own organizations. They are user-oriented, have frequently taken advantage of new technology, and have developed tools to assist them to serve their users more effectively. They have a history of informal cooperation.

Certain segments of the private sector have developed new types of information services for sale to information users of all kinds, including libraries in the public and private sectors. Many of these services employ unconventional products which derive from applications of the new technology, such as microfiche, video cassettes, on-line, computerized data banks, facsimile transmission, and CATV. In some cases, the new services represent innovative extensions of past practices. Taken together, the new commercial and other private sector information services are growing rapidly in number, function, and value.

Since information has an economic value of its own, the use of commercial and other private sector information services is becoming accepted as a reliable and cost-effective method of obtaining information.

While little precedent exists for incorporating private sector resources and services into the country's functional information structure, it seems essential that they be made an integral part of any National Program.

Objective 7. Establish a locus of Federal responsibility charged with implementing the national network and coordinating the National Program under the policy guidance of the National Commission.

The National Commission is a policy-making and planning body. It is not empowered by law to operate programs. What is needed, as a matter of first priority, is a locus of Federal responsibility, some agency in the Federal establishment, where policies with respect to library and information service activities can be transplanted into action. Such an agency's initial responsibilities would include: implementing a nationwide network, coordinating the National Program, and putting into practice related policies enunciated by the National Commission. It would also have authority to make grants and contracts, establish standards and encourage their adoption, and undertake other functions consistent with the Commission's policies to implement a program of national concern.

One of the most important issues to be resolved in pursuing a National Program of Library and Information Services is deciding what kind of permanent operating agency is required at a Federal level for this purpose and recommending where the agency should be located in the government.

It may not, strictly speaking, be necessary to create a new Federal agency. It may be that the proposed functions of the National Program could be assigned to several existing agencies merely by broadening their responsibilities. The important thing is that the new National Program will require new administrative and operational functions and that, at present, there seems to be no natural home to accommodate them. The Commission firmly believes that the responsibility of the agency, whether old or new, should be neither all-encompassing, nor authoritarian, nor prescriptive, nor regulatory, but rather, that it should be supportive and coordinating. This agency is seen as one which would encourage cooperative efforts at every level and which would coordinate backup national services. It would have no control whatsoever over the content of the information flowing over the nationwide network. It would, however, be backed by legislation to enable it to obtain the necessary funding from the Congress for meeting the crucial needs of the National Program. It would also be authorized

to require compliance with standards for nationwide compatibility as a condition of continued funding.

Whatever central authority is eventually established to direct the National Program, local autonomy and the maximum degree possible of local self-determination should be one of the program's major tenets. The variations of needs and existing levels of services and resources are so great that it would be difficult for a central authority to be fully cognizant of the diverse needs of all.

It is not yet clear where an agency responsible for library and information service belongs in the organizational hierarchy of the Federal Government, or whether there is an existing agency to which this role would be appropriate. Three existing national agencies have been mentioned as possibilities.

(1) The Library of Congress;
(2) The Office of Libraries and Learning Resources, U.S. Office of Education; and
(3) The National Commission on Libraries and Information Science.

Recognizing the importance of the relationship between the proposed program and the private sector, some people have suggested that the new responsibilities and functions be assigned to a quasi-governmental agency organized along the lines of the Corporation for Public Broadcasting.

It is far from clear at the moment what the best solution might be, and the Commission, therefore, feels that these and other alternatives should be thoroughly investigated.

The Commission cannot stress strongly enough the urgency attached to finding a suitable home in government for implementing, coordinating and integrating library and information service on a national scale.

Objective 8. Plan, develop and implement a nationwide network of library and information service.

The National Commission believes that only by interrelating the pluralistic cooperative programs of the past and providing a national frame of reference for future development will the nation be able to achieve optimum exploitation of the rich information and knowledge resources in the United States.

The next section describes the main elements of the proposed nationwide network whose purpose, as indicated earlier,

is to tie together information systems at all levels; Federal, multistate, individual state, and local, as well as compatible systems found in the private sector. The aim is to permit rapid delivery of needed services and materials to people in all jurisdictions without artificial institutional or geographic constraints.

Meeting the above eight priority objectives constitutes the sum of the Commission's proposed program. It attacks problems and deficiencies on a broad front and provides a comprehensive approach toward their solution. In some instances, existing programs would be strengthened or reoriented. In other cases, the Commission would initiate new programs—such as the nationwide network. To bring this all about will require new legislation. This legislation would need to: define the total program; assign responsibilities and functions within the Federal Government to relevant agencies; provide needed authorizations; specify the criteria for participation in the network; and authorize multiyear appropriations commensurate with program and accountability requirements.

The Nationwide Network Concept

Major Federal Responsibilities

A nationwide network of libraries and information centers means an integrated system encompassing state networks, multistate networks, and specialized networks in the public and private sectors. The Federal Government would force no library or information service to join the network, but it would provide technical inducements and funding incentives to state governments and the private sector to strengthen their ability to affiliate.

At first, network affiliation is expected to occur organizationally through formal agreements or contractual relationships among groups of libraries and other information facilities. But later, the Federal Government would provide financial and other incentives to the states and to the private sector to enable them to achieve working interconnection. In certain specific instances, the Federal Government would assume responsibility for the interstate portion of the network's activity. Specifically, it would collaborate with appropriate professional societies in promulgating interstate technical standards, and it would support the introduction of additional computer and

telecommunications facilities as needed for interstate purposes, and help establish protocols governing the way transactions are handled by the network. The commercial communication carriers are already building up their capacity to handle the type of traffic which is expected to flow over a nationwide network of libraries and information centers.

Within the National Program here advanced, the Commission sees the national network as a flexible, voluntary, and evolving confederation of those who deal with the nation's vast information resources. The following pages discuss major Federal responsibilities as identified by the National Commission.

(1) *To encourage and promulgate standards.* Without doubt, an essential function, to be performed by the agency responsible for implementing the nationwide network, will be that of encouraging and guiding the development and adoption of common standards and common practices, adherence to which is implicit in system design and implementation of a nationwide information network. These standards include those required to assure interconnection between intrastate networks, multistate networks, and specialized networks in the public and private sectors.

The importance of establishing standards at the national level cannot be overstated. It is the principal method for achieving economies of scale and reducing duplication among libraries and other members of the information community. Current research in computer networking clearly indicates the need for standards covering a variety of areas, including computer hardware and software, access protocols, data communications, data standards, data elements and codes, and bibliographic standards. Careful attention to standards problems and requirements at the design stage can significantly reduce the incompatibilities and interconnection problems that arise when independently developed systems are integrated into a coherent operating network. The establishment of standards late in the network development process would be disruptive, costly, and, frequently, ineffective.

The Institute for Computer Sciences and Technology (ICST) at the National Bureau of Standards has governmentwide responsibility for developing mandatory Fed-

eral Information Processing Standards and for coordinating Federal participation in the development of voluntary computer standards, mainly through the American National Standards Institute (ANSI). The ANSI standardization program encompasses the development of standards and guidelines in a broad selection of areas, including computer software, data elements and codes, software documentation, computer security and controlled accessibility, computer networking, computer system performance measurement and evaluation, magnetic media, data communications and computer hardware. Although much of the Institute's technical program is conceptually relevant to the concerns of the National Program, it would appear that the outputs of the current program do not fully satisfy the requirements of the entire information community. Much more needs to be done, in both the public and private sectors, if the more generalized standardization problems are to be satisfactorily solved.

In addition to having technical standards, such as those relating to hardware and software, a nationwide network of library and information service will also need to strive for common bibliographic standards. The most powerful force for bibliographic standardization in the United States is the MARC-II format developed by the Library of Congress. The format has proved so useful that it has already been accepted as a standard by the American Library Association, the American National Standards Institute, and the International Standards Organization.

Aside from bibliographic standards for monographs and serials, other areas are in need of standards for their future uniform development. For example, bibliographic standards must be provided for reports, maps, pictures, films, machine-readable data files, sound recordings, etc. The Association for Educational Communications and Technology (AECT) has already issued a publication entitled "Standards for Cataloging Non-Print Material," and the Library of Congress has work in progress to extend the MARC program to include the new media.

The commercial and not-for-profit indexing and abstracting services do not yet possess a common approach to bibliographic control. In order to achieve the goal of national interchange of bibliographic data over on-line computer/

communication systems, and to reduce the hazards of duplication of effort, it is imperative that this community take steps now towards the adoption of standards.

In the same vein, scholars working in the humanities are gradually building libraries of machine-readable texts. A large number of these literary texts exist in computer form already. If they are to be used efficiently by scholars in the future, plans must be laid now to develop them according to standard procedures and conventions. Agreement has been reached in the bibliographic world on a standard computer character set—such as the letters, the diacritical marks, numerals, punctuation, and special symbols—but more remains to be done to assure uniform adherence to these conventions by librarians and humanists.

At a Conference on National Bibliographic Control in April 1974, representatives of the public and private sector were unanimous in their agreement that a national system of bibliographic files is an essential part of a national bibliographic system. They recommended that these files be in a standard machine-readable format and that the data base contain ". . . certain records which will provide for the unique identification of each item and will list appropriate locations of each." [10] As a result, a project under the auspices of NCLIS, the National Science Foundation, and the Council on Library Resources was started in February 1975 to achieve this bibliographic objective. The Commission firmly believes that unless common bibliographic standards are agreed upon along the lines of this recommendation, the nation will face a form of information chaos within the next few years.

And, finally, standards are needed in the areas of reprography and micrographics. Although a number of useful standards already exist, there are a great number of examples of nonstandardization which users currently endure. For example, there is no universal microfilm cartridge on the market that is compatible with all available equipment. Considering that more than two hundred companies are engaged in manufacturing microfilm equipment and services, the development of standards is, at best, a difficult chore. However, if microfilm is to become a dynamic medium in library operations, then users, producers and groups like the National Microfilm Association

and the American Library Association, must work together to standardize its adaptability to information functions.

It appears that reasoned and effective standardization is the best way, if not the only way, to obtain maximum national benefit from electronic networking and new information formats. If there is to be the level of hardware, software, and bibliographic standards required for nationwide networking, full and active community participation in developing these standards is mandatory. A very high percentage of the total input to libraries is now, and will continue to be, provided by the private sector. Technical and bibliographic standards will control both the form and the content of this input. All computer-readable data, as well as all microforms, will be impacted by these standards. A higher degree of expertise than is currently available in any one sector will be required to set these standards. The Federal Government, therefore, has a responsibility to encourage and support present and future standardization efforts, both in the public and private sectors, and to provide for the modification of existing standards and the coordinated development of new standards as they are needed. The responsible Federal agency would view the promulgation and enforcement of standards as one of its major and most important functions.

(2) *To make unique and major resource collections available nationwide.* The new network would make unique and major resource collections available nationwide. The term "unique collections" refers to a body of materials and information which shares a common characteristic, such as form (newspapers), period (Renaissance), language (Japanese), or subject (chemistry). The Commission recognizes that there are many institutions in the country, both publicly and privately supported, whose collections include one-of-a-kind resources of general interest and potential benefit for the entire population, e.g., the comprehensive research collections of Harvard University, the New York Public Library, and the Newberry Library, or less-well known but singularly important, the Glass Information Center in Corning, New York, the Chemical Abstracts Service in Columbus, Ohio, and many others. The responsible Federal agency must identify means for protect-

ing unique and major resource institutions like these and be authorized to provide incremental funding to enable them to serve more people than their primary clientele. To achieve this, the Federal Government would offer to compensate such institutions for performing added services. The institutions, in turn, would have the option of accepting or rejecting a national responsibility for developing and sustaining their particular collections.

Charges may have to be levied for the use of some unique collections. When such compensation is required, appropriate fees and payment methods will need to be devised.

(3) *To develop centralized services for networking.* A similar responsibility of the Federal Government would be to sponsor and support centralized bibliographic and other services in the public and private sectors, when it can be reasonably demonstrated that such central services would benefit a majority of libraries and information centers or achieve economies of scale.

Examples of potential services include a national audiovisual repository, a national system of interlibrary communication, a national depository for the preservation of master microforms and "best copies" of all works of significant research value, or a national periodical bank. The National Library of Medicine (NLM), for example, is already the "library of final resort" for medical periodicals not held elsewhere in the country.

In the humanities there is a steady increase in the establishment of bibliographic data banks of abstracts of articles published in the United States and abroad. A need to combine these and other data banks for cross-disciplinary research in the humanities could lead to the development of a centralized computer retrieval service for the humanities available through the nationwide network.

The Commission, of course, recognizes that some functions are better performed locally than centrally. However, in many areas of the country some institutions are wastefully duplicating effort, performing repetitive processing, storing similar materials beyond those required to satisfy local everyday demands, and giving incomplete or limited services to the public because of the lack of centralized services. Existing national services that currently serve the

library and information community at large, such as those provided by the Library of Congress, would be re-examined and either modified or incorporated intact into the National Program. Others that are needed would be initiated by the Federal Government.

The criteria to be followed in designating national collections and services, or in recommending their establishment *de novo*, will need to be carefully articulated in proposed legislation.

(4) *To explore computer use.* Computer technology is another very important part of the design of a future nationwide information network. Computers have become indispensable tools in the operation of library and information networks.

Today, libraries use computers for many phases of their operations: recording, control, dissemination, and retrieval of bibliographic information, catalog card production, circulation control, book ordering, serial records, and other routine library functions. Aside from these applications, research is also being pursued by libraries to find ways of using the computer to answer library reference questions; a number of libraries, in fact, have already begun to search computer bibliographic data bases. Libraries of the future might be expected to have the full text of certain materials stored in a form readable by machine.

The nationwide network may require several computer installations for centralized processing to help transform the machine-readable bibliographic records, produced by the Library of Congress and other national libraries, into forms (such as cards, book catalogs, special bibliographies, selective dissemination of information (SDI) services, etc.) suitable for decentralized use in each state. For each library, or each state, or that matter, to operate a large-scale computer installation would be prohibitively expensive in most cases. The cooperative, time-shared, multi-institutional approach to computer usage, supported by the Commission, appears to be the most economic and efficient solution.

Computer installations in the nationwide network would carry out three functions: the first, dedicated to bibliographic production (the processing of machine-readable

tapes produced by the national libraries into by-products required by the local institutions); the second, devoted to service uses (recording holdings, making referrals, managing interlibrary loans, searching data bases, performing interactive searches of bibliographic and abstract files, etc.); and the third, related to the management and accounting function of network operation, including inter-system payments of suppliers of information. The existence of several computer centers for interstate use in the network will not offset the need for some libraries to maintain their own computers—probably dedicated minicomputers—to satisfy local internal processing needs. In fact, the minicomputer may eventually become a distinct and direct functional component within a national communications and computer network. Computers at the multistate level of the national network would probably be a set of large, fast, time-shared computers, with transmitting and receiving terminals in the member institutions.

(5) *To apply new forms of telecommunications.* Since the main purpose of a nationwide network is to place the user in contact with his materials, finding ways of speeding up the delivery of information constitutes one of the more important aspects of the network concept. A nationwide network must incorporate appropriate means of communicating rapidly and effectively with the facility at which the desired material is located. It is in regard to the techniques which allow optimal interconnection between user and resource that the greatest change in current thinking and practices will be required.

Of all the different kinds of equipment used by libraries for interlibrary communications, the one which has received widest acceptance, other than voice-grade telephone, as a low-cost practical tool, is the teletypewriter. Teletype communications between and among libraries exist in both informal and formal network configurations. They are generally used to augment library holdings on a reciprocal basis, to provide for general communications with other libraries, to serve as a channel for querying union catalogs, and to accommodate reference questions and services. Business, industry and government also utilize teletype for exchanging information.

A future telecommunications system used for a nationwide information network will eventually need to integrate teletype, audio, digital, and video signals into a single system. This concept is an important aspect of the design of a modern communications system for information exchange. "Integrated telecommunications systems" have become practical only during the past few years, and commercial and governmental efforts are underway to provide these unified facilities on a large scale. Within the next few years, domestic communication satellites will be operating over the United States, thus further enlarging the nation's capability to exchange information in all forms.

Although distribution of documents from, say, holographic or microform collections through electrical channels to individual libraries, or even directly to the user, will soon be technically feasible, the bulk of information will, most probably for a long time to come, be transmitted over regular communication channels such as mail, parcel service, intercity bus, rail, dedicated interlibrary delivery systems, bookmobile, and other means. Even though, at the present time, many commercial telecommunication companies are upgrading their lines, it would appear that the regular costs for library and information telecommunications would still be too high, and that an exception to the Federal telecommunications regulations may be needed to guarantee reasonable rates for interstate information exchange.

The Commission believes that rapid and inexpensive telecommunication among members of the nationwide network could turn out to be the greatest boon ever to the national distribution of knowledge for education and progress. For this reason, the responsible agency would be directed to explore all possible avenues leading to reasonable communication rates for library and information networking purposes. First, as an interim step, the possibility should be explored of incorporating this type of communication into the normal Federal Telecommunications System (FTS). In this case, special legislation may be necessary to authorize interstate use of the FTS system free of charge or at a reduced rate. Second, approaches might be made to the Federal Communications Commission (FCC), or the National Aeronautics and Space Agency (NASA),

for permission to use satellite communication channels, at first for experimental purposes, and later for regular traffic. Or, alternatively, the cost of interstate communications could be borne by the institutions that use the network, either by being subsidized directly by the state or Federal Government, or through charges levied against the individual user.

Many European countries have already begun to provide communication links at lower tariff rates in order to influence and stimulate the development of national information systems.

The United States Government is in a position to give the whole nationwide library and information network an initial impetus by subsidizing low-cost rates until the entire scheme reaches a level of usage that ensures its economic viability.

(6) *To support research and development.* Transforming the nation's heterogeneous information facilities and services into a nationwide network will pose many new problems. Some of these problems will arise from the application of the new technology, some will derive from the effects of new information systems on users, and others will originate with the profession itself as it struggles with the dynamics of change.

A stronger Federal program of research and development, through grants and contracts, can provide an overall framework within which common investigations can be carried out. By concentrating specialized skills on crucial common problems, the Federal Government helps reduce duplicate and costly piecemeal research that would otherwise be performed by the states, provides for research and demonstration across jurisdictional boundaries and, at the same time, greatly accelerates the rate at which new methods and equipment can be transformed into operating systems.

For example, a Federal policy should be enunciated which encourages and facilitates the development of telecommunication technology and services especially suited to interlibrary communication (and another Federal policy should encourage the sharing of relevant computer software developed at government expense).

The Commission believes that a vigorous Federal research and development effort is essential. At present, the

Office of Science Information Service of the National Science Foundation (OSIS/NSF) is the principal component of government responsible for information science research in the field of science and technology. Its research programs are carried out in close cooperation with higher education, industry, and professional associations. Although OSIS/NSF research programs are generally concerned with the investigation of problems in the field of science information and problems of research libraries, methodologies and techniques developed for these specific purposes could be transferred to and used to good advantage in other fields. If the OSIS/NSF research and development programs were further strengthened and conducted in close collaboration with the Commission, they would most certainly yield many new insights into network organization standards, economics, technology, access, and use that would help accelerate the implementation of a national network of library and information service activities. Research and demonstration in library and information science and library training rests with the U.S. Office of Education, Library Research and Demonstration Program. Since its inception, this program has provided funding to organizations for the improvement of libraries and information science. Current focus is on consortia building, more efficient use of resources, and on groups with special or unmet needs (such as the economically disadvantaged, ethnic minorities, senior citizens, women) and on improvement of training in library and information science. Heaviest program emphasis has been on networks to be used by—and which are designed to serve as bases for—state, regional, and national networks.

(7) *To foster cooperation with similar national and international programs.* In recent years, computer and communications technology have made the concept of a worldwide information network a practical reality. As a result, many countries are trying to articulate their plans for national information programs with broader international plans.

Through the good offices of the United Nations Educational, Scientific and Cultural Organization (UNESCO), productive efforts are underway to achieve technical compatibility among national information systems in order to

ensure that future international exchange of information will occur efficiently.

The United States, through the National Science Foundation already supports UNESCO's UNISIST (an acronymic term which stands for the feasibility study on the establishment of a world science information system) program, which is directed toward the more systematic development of international information services. The United States also participates actively in the information activities of the International Standards Office (ISO), the Universal Copyright Convention (UCC), the International Federation of Library Associations (IFLA), including its principal objective of Universal Bibliographic Control, the Organization for Economic Cooperation and Development (OECD), the Federation Internationale de Documentation (FID), and other related programs.

There are also some new developments in international standards which hold great promise for electronic processing of original input of bibliographic data, such as International Standard Bibliographic Descriptions for monographs and serials, proposed by the International Federation of Library Associations (IFLA) Committee on Cataloging. Final agreement on the precise terms of these standards should bring about substantial benefits to both libraries and users.

Americans need access to foreign publications and information, and vice versa. A worldwide network may, someday, enable people of any country to tap the knowledge resources of the world. A step closer to the attainment of this ideal can be taken if the proposed National Program supports a strong leadership role for the United States in the evolution of compatible information systems and networks throughout the world.

Organizational Relationships and Supporting Responsibilities

Figure I depicts the organizational relationships among government agencies and the private sector as envisioned for the National Program by the Commission.

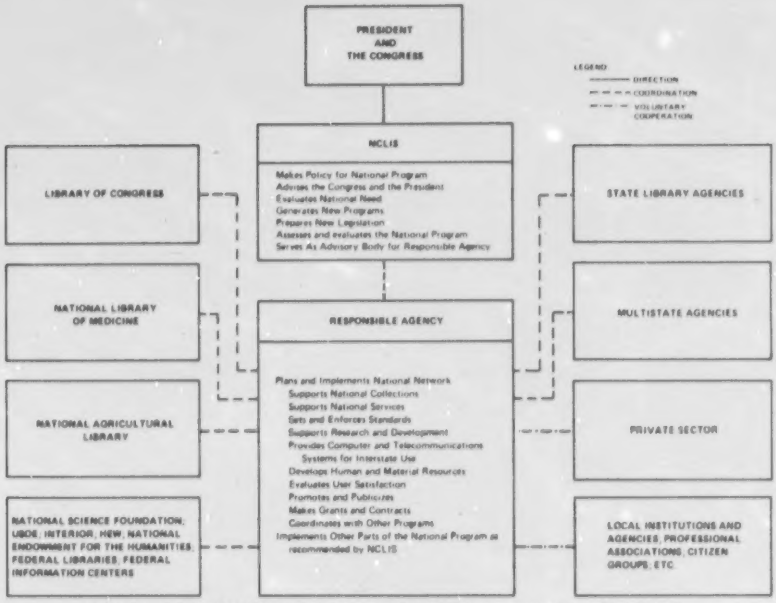
PRESIDENT AND THE CONGRESS
LEGEND
DIRECTION
COORDINATION
VOLUNTARY COOPERATION
NCLIS
Makes Policy for National Program
Advises the Congress and the President
Evaluates National Need
Generates New Programs
Prepares New Legislation
Assesses and evaluates the National Program
Serves As Advisory Body for Responsible Agency
LIBRARY OF CONGRESS
NATIONAL LIBRARY OF MEDICINE
NATIONAL AGRICULTURAL LIBRARY
NATIONAL SCIENCE FOUNDATION, USOE, INTERIOR, HEW, NATIONAL ENDOWMENT FOR THE HUMANITIES, FEDERAL LIBRARIES, FEDERAL INFORMATION CENTERS
RESPONSIBLE AGENCY
Plans and Implements National Network
Supports National Collections
Supports National Services
Sets and Enforces Standards
Supports Research and Development
Provides Computer and Telecommunications Systems for Interstate Use
Develops Human and Material Resources
Evaluates User Satisfaction
Promotes and Publicizes
Makes Grants and Contracts
Coordinates with Other Programs
Implements Other Parts of the National Program as recommended by NCLIS
STATE LIBRARY AGENCIES
MULTISTATE AGENCIES
PRIVATE SECTOR
LOCAL INSTITUTIONS AND AGENCIES, PROFESSIONAL ASSOCIATIONS, CITIZEN GROUPS, ETC

FIGURE I. THE PROPOSED NATIONAL PROGRAM OF LIBRARY AND INFORMATION SERVICE

In addition to the Executive Branch of the Federal Government, there are three other key components in the proposed national network which are crucial to its success. First, there are the fifty states, all of whom have resources to contribute to the network and requirements to be filled by the network. Second, there is the Library of Congress, which is the keystone of the nation's bibliographic system and is uniquely able to perform centralized services vital to the network. Finally, there is the private sector, which contains a multitude of old and new information services which fulfill a large part of America's daily demand for information.

Responsibilities of State Governments. National goals in the field of library and information service cannot be achieved unless there is careful articulation between local, state, multistate, and national planning. It is the Commission's view that each of these levels in the nationwide program should bear its share of the total financial burden. For example, the Federal Government would fund those aspects of the network which support national objectives, and stimulate statewide and multistate library development needed to support the national

program. The state government would accept the major share of the cost of coordinating and of supporting the intrastate components of the network, as well as a part of the cost of participating in multistate planning operations. Each state must recognize its responsibiilty to develop and sustain its own statewide program of library and information service. Such a program must commit the state to provide funding or matching funding for development of resources and services, including special forms of statewide network assistance and specialized services.

If this type of *quid pro quo* philosophy were adopted, and if incentive formulae were worked out to make local, state, multistate, and national financing mutually reinforcing, then a nationwide network could grow from the bottom up. To achieve this goal, however, requires that the responsibilities of the various levels be well defined, that financial obligations be clearly recognized and that legal commitments be made possible through appropriate statutes. Some states may decide to provide funding for the further development of library and information services within the state, while other states may elect to share funding with local governments.

It would be an important advance if the states would elect to prepare and/or update corresponding legislation setting forth statewide programs of library and information services, and specifically committing individual states to provide direct and matching funding.

Responsibility for fostering the coordination of library resources and services throughout a state has usually been assigned to a state library agency or to another agency with the same legal authority and functions. This agency is the natural focus for statewide planning and coordination of cooperative library and information services and for coordinating statewide plans with those of the Federal Government. Such agencies should solicit the widest possible participation of library, information, and user communities. Several states such as Illinois, New York, and Washington already have operational systems or networks which are in harmony with the Commission's program. The fifty states, however, must make a firm commitment to continuing support and funding of library and information activities at a level commensurate with the needs of their constituents.

State library agencies have a major role to play in the development of a nationwide program of library and information service. Many of these agencies now serve a significant planning and coordinating function in their respective states or in a multistate complex. Therefore, they should be considered partners by the Federal Government in developing and supporting useful patterns of service. Among the benefits which could accrue from such a partnership are greater possibilities for compatible programs and sustained funding through mutually-supportive efforts.

Proposed Federal legislation in support of library and information services must recognize that the states are at varying stages of developing their services; some states have not yet initiated plans, and others are in the early stages of planning, while still others are already implementing sophisticated programs. Some states have networks organized by type of library, others have networks that include all types of libraries, and still others have networks that include information agencies as well as libraries. Federal-state funding formulae must, therefore, be devised which will take into account these differences among the states and provide the means for supporting various levels of development.

Some of the advantages which would accrue to a state through its affiliation with, and participation in, a nationwide network are as follows:

(1) It would enable a state to get more information for its residents than it could possibly afford to amass through its own capital investment by providing them with access to the total information and knowledge resources of the country.
(2) It would enable a state to receive reduced-rate interstate telecommunications services through the Federal Telecommunications System or commercial channels. This asset alone would repay participation because it represents a share in a very sizeable Federal investment.
(3) It would enable a state to receive computer software, computer data bases, technical equipment, and other materials which derive from the Federal Government's library and information science research and development programs.
(4) It would ensure that the state's internal network plans are

developed in harmony with Federal plans, and thus reduce the possibility of large-scale modification costs in the future.

(5) It would enable a state to receive matching funding from the Federal Government to provide incentives for bringing state and local collections and services up to national standards.

(6) It would enable a state to receive matching funding from the Federal Government to initiate network operations within the state at levels consistent with the time-frame and scope of the national network.

(7) It would enable the state to spend its library dollars optimally by investing mainly for general state and local needs and relying on the nationwide network for additional specialized materials, for interstate services, and for other services of common concern.

Multistate groups are forming in different parts of the country to provide a mechanism for planning a regional network program among several states. Such groups are usually organized when two or more states decide to pool their financial and other resources for a specific purpose, i.e., for developing an all inclusive library and information program. Some multistate groups are created by interstate compact, some are incorporated, and others function less formally. Where a legal entity does exist for a multistate group, the participating states must decide how financial support from the Federal Government can be channeled to the new organization.

Figure II is a table comparing the National Program responsibilities of the Federal Government and state governments.

Responsibilities of the Private Sector. The private sector is defined as organizations (either for-profit or not-for-profit) which are not directly tax supported. Success of a National Program depends on the degree to which the private sector of the nation carries out its responsibilities toward the growth and coordination of libraries and information centers. As a major producer of cultural, scientific, technical, and industrial information, the private sector must take on greater responsibility toward developing the information resources of the nation.

The private sector should recognize its own special libraries and information centers as windows on the nation's information resources. Without support from parent organizations, without establishment of new special libraries where series gaps are apparent, the private sector will not only shirk its responsibilities, but will diminish its credibility as an interested participant in the National Program. Special libraries are a peculiarly American invention; and it is hoped that the leaders of business and industry who employ professional personnel as an investment to put knowledge to work for them will encourage shared resources through the National Program as a reasonable response to a national need. The private sector should work closely with the public sector in order to produce materials and provide services which will make the national network both useful and cost-effective. The private sector is already contributing toward improved products on the basis of competition in the marketplace.

FUNCTION	FEDERAL	STATE
GOAL	To foster cooperative programs within each state and among states by providing federal funding to inaugurate or continue intertype networks at appropriate levels, to demonstrate and test and evaluate them, to support them with technology and to help them move toward financial self-sufficiency.	To develop and operate networks of library and information resources within the state with federal and state funds expressly earmarked for this purpose within the first three years of the law, and provide for interfacing the intrastate networks with multistate and national networks of all types.
FUNDING	To increase funding and aid in the operation and improvement of basic library and information services at all levels.	To engage in funding programs which ensure that local requirements for materials and information services sufficient to meet the needs of their constituencies are indeed met.
PLANNING AND COORDINATION	To coordinate the Federal Program with the states and with multistate groups.	To establish and maintain mechanisms for coordinating state programs with federal and multistate programs.
NETWORK DEVELOPMENT	To create a federal library and information network that will make available the information resources of federal agencies and to coordinate and develop access mechanisms to the resources of the nation.	To create a statewide library and information network that will make available the information resources of state government agencies to the local level and to coordinate and develop access mechanisms to the resources of a region.
BIBLIOGRAPHIC SERVICE	To establish and/or support those bibliographical services of nationwide concern that are best carried out on a centralized basis.	To provide means by which national bibliographic services may be used within the state or among states.
UNIQUE COLLECTIONS	To designate and help sustain unique, national collections and access mechanisms that all states may use as back-up to their own resources.	To designate and sustain for service to the people of the state major collections and access mechanisms for wider internal use and greater self-sufficiency within the state.
STANDARDS	To establish and promulgate technical standards and to facilitate interconnection across state lines.	To develop means for erasing artificial barriers to cooperation. To support and monitor observance and implementation of standards set by the National Program.

FIGURE II. FEDERAL AND STATE RESPONSIBILITIES IN THE NATIONAL PROGRAM

FUNCTION	FEDERAL	STATE
COMPUTER SUPPORT	To help each state or multistate region establish computer support services for technical processing and public service purposes. To provide electronic access to the national data base.	To produce and/or provide access to union lists, cumulative indices, directories, and other bibliographic tools to support rapid identification, access, and referral within the state. To coordinate and assist in developing computer support for individual library processing.
TELECOMMUNICATIONS SUPPORT	To provide telecommunications at low tariff rates, for interstate library and information exchange.	To foster and facilitate low cost communications between and among libraries and other information facilities within the state.
RESEARCH AND DEVELOPMENT	To perform and/or support research, development, and evaluation in areas of nationwide concern or potential, to monitor developments in library and information services, and to disseminate information relating to the above activities.	To perform and/or support research, development, and evaluation in areas of statewide or multistate concern or potential, to monitor developments in library and information services, and to disseminate information relating to the above activities.
EDUCATION AND TRAINING	To fund education and training programs in modern library and information science through fellowships, intern programs, etc.	To provide guidance to federal and state authorities in the development of educational standards, the definition of needed skills, and the installation and evaluation of feed back mechanisms. States alone or in cooperation with other states have a responsibility for continuing education.
PUBLICITY AND PROMOTION	To plan and carry out programs to inform potential users of the services available through the national network and to actively encourage the use of these services.	To plan and carry out educational and promotional programs tailored to the state and region.
EVALUATION	To continually assess the progress of the National Program and to change plans and directions accordingly.	To monitor and evaluate the effectiveness of state and regional programs vis a vis the National Program and plan new state programs where needed.

FIGURE II. FEDERAL AND STATE RESPONSIBILITIES IN THE NATIONAL PROGRAM (Cont.)

Facilitating the active participation of the private sector in the development of a national information system may require legislative authority. A new orientation to Federal funding and user economics may also be required to harmonize the traditional library information systems with the newer commercial and other specialized information services.

The exact role of the private sector in a national information program is not yet known. The Commission believes that this area will require intensive study and full collaboration with many different organizations before a meaningful legislative recommendation can be developed.

Responsibilities of the Library of Congress. Among the national facilities with which the Commission is concerned, the largest and the most important to the success of the proposed National Program is the Library of Congress. Because of its size, stature, and comprehensive collections, the Library of Congress is the hub of the nation's bibliographic apparatus for

monographs and serials. The National Library of Medicine and the National Agricultural Library complement the Library of Congress by specializing in their respective fields. All three libraries play a vital role in the library and information programs of the nation. Although the Library of Congress is not officially designated as a national library, it is *de facto* a national library; it performs many common processing services, and provides many user services for libraries throughout the country. It receives and catalogs the bulk of the same titles received by other American libraries, and the intellectual work which it does centrally obviates the need for local duplication. The National Union Catalog, the Card Distribution Service, and the MARC (Machine Readable Cataloging) Program, which includes making current cataloging information available on magnetic tape, are prime examples of the central work done by the Library of Congress which accrues to the benefit of most American libraries.

The participation of the Library of Congress is crucial to the development of a National Program and to the operation of the nationwide network because it has the capacity and the materials to perform many common services in both the areas of technical processing and reference and because it can set national bibliographic standards for the program. New legislation may be needed to designate the Library of Congress as having responsibilty for integral aspects of the National Program.

The Commission believes that the Library of Congress should be designated as the National Library. In its role as a National Library it should accept the following responsibilities in the National Program:

(1) Expansion of the lending and lending-management function of the Library to that of a National Lending Library of final resort. The Library of Congress has been interlibrary lending a variety of its materials to other libraries for many years. In the development of a national system of information resources, there will be complexes of collections organized for sequential service levels. Loan of library and information materials will, in some cases, have to come from the most comprehensive collection, that of the Library of Congress. To fulfill this requirement for backstopping the other significant resources in the nation, and to do so

without infringing on the need to protect its collections for future use, will require extended new arrangements. Such arrangements will incorporate the purchase of some materials for loan and, in some cases, the use of microforms to produce, simultaneously, a preservation copy and a print copy for loan. Development and management of the components of this extended service, including arrangements for added collections, a new system of interlibrary communications, a new mechanism for obtaining copyright permission, and improved document and text delivery techniques, will be required.

(2) Expansion of coverage of the National Program for Acquisitions and Cataloging (NPAC). This program, to acquire, catalog quickly and disseminate cataloging data rapidly for all current works of research value, has been progressing for over six years. In that time, the percentage of materials acquired and cataloged from all sources, to meet the expressed needs of the library and research community of the United States, has climbed from fifty percent to seventy-five percent. The Commission believes that the Library of Congress should seek to acquire, catalog and process for current and future use, a larger percentage of the world output. With the expenditure of approximately $15 million per year by the Library of Congress for such a purpose, it is estimated that there would be a fourfold national saving for research libraries alone, as well as additional significant national benefits. This is the kind of economy of scale that a coordinated National Program could bring about.

(3) Expansion of Machine-Readable Cataloging (MARC) to include cataloging in substantially all languages of current monographic, serial, and other significant library and information materials being acquired by the Library of Congress; distribution of this data base, perhaps to state and regional centers and other national network nodes for library and information service. This project, to extend what has already become a landmark service for the public, university and research libraries, and information centers of the nation, is essential for the effective operation of the bibliographic apparatus of the Library of Congress and other research libraries and information agencies. The task of maintaining bibliographic control of the increasing amount of significant library and information materials

acquired by the Library of Congress is best accomplished using automated methods. Improved access to these materials cannot be provided without the application of computer processing to a machine-readable cataloging record.

(4) Distribution of bibliographic data through on-line communication. With the promise of acquisition and cataloging of most of the significant publications of the world, including serials, the potential of a complete machine-readable data base can be fulfilled if a central organization speeds the products of these services to the user through his library and information service network. Full utilization of the technology of on-line access and distribution networks must be accomplished as early as the technology makes this economically possible. Some of the products expected are automatic creation of local machine-stored catalogs of local or remote collections, custom-made bibliographies from large data bases, intercoupling of user requests with current cataloging to eliminate delay in availability of recently acquired items, and remote instantaneous delivery of very recent cataloging production.

(5) Development of an expanded general reference program to support the national system for bibliographic service. This would include faster means of communication with other libraries, particularly when the Library of Congress may be the sole source in the nation for the needed information. It would also include an expanded, rapid-response, referral service to other sources of information.

(6) Operation of a comprehensive National Serial Service that will integrate and expand the present serials activities of the Library and provide an organized set of serial services for the nation. Serials constitute the greatest number of individual items in many libraries. Their ordering, receipt, cataloging, indexing, servicing, and preservation consume a sizeable portion of the budget and considerable staff time. National efforts can substantially benefit all libraries, make their work with serials more effective and less costly, and improve the accessibility of serial literature to users.

(7) Establishment of a technical services center to provide training in, and information about, Library of Congress techniques and processes, with emphasis on automation. The center's training program would answer the demand for a more detailed knowledge of the Library of Congress's

technical services than can be otherwise gained. It would be developed gradually, would be flexible, and would offer specialized instruction to meet particular needs. It would permit librarians in the field to be brought to the Library of Congress for training, and enable the Library of Congress staff to go out to libraries. The center's information program would be two-way, seeking information from other libraries as to their needs and, concurrently, providing them with up-to-date information about the Library of Congress's technical services. Its staff would make possible expansion of present programs involving communication, consultation, technical institutes, and publication.

(8) Development of improved access to state and local publications and cooperation with state and local agencies to standardize cataloging and other techniques of organization. Potentially useful information in state and local governmental publications is not now widely accessible to users, because it is not uniformly printed, collected, announced, organized, preserved, and publicized.

(9) Further implementation of the national preservation program. The physical deterioration of library materials, particularly those printed on paper produced since the middle of the Nineteenth Century, poses increasingly critical problems for libraries. The solution to this problem lies partly in increased research in preservation methods. Inasmuch as the Library of Congress has already mounted an important effort in this area, a further modest increase would speed the time at which viable solutions are available. Additional funds for filming vital materials, for restoring rare materials, and for transferring deteriorated materials into microform are equally important. Funds are also essential to train the added conservators and preservation specialists needed to retain the record of civilization housed in the nation's libraries.

Proposed Legislation

Future legislation will have as its objective the nationwide network and will outline the role of the Federal Government, the national libraries, and the states in its development and implementation. It will also specify the functions which should be performed centrally; it will establish the basis for appropri-

ate Federal-state and state-local matching funding to guarantee a continuing Federal and state investment; it will establish a locus of Federal responsibility for implementing the policies and programs of the National Commission; and it will provide a framework for active private sector participation. Finally, legislation must safeguard the various aspects of privacy, confidentiality, and freedom of expression. The Commission's intent is to create a program that is going to enforce, enliven, and enspirit this country's creative powers, so that more can be achieved with our total intellectual and knowledge capacities. The Commission sees the National Program as a force for productivity and creativity, and not as an authoritative and inhibitive constraint which would control the behavior of people.

Funding

Beginning in 1956, with the passage of the Library Services Act by the Congress, the Federal Government has gradually assumed responsibility for programs of financial assistance to libraries. There are some who view the continued financial support of libraries by the Federal Government with alarm, because of the inferred fear that the bureaucracy will, sooner or later, stifle intellectual freedom. Certainly, the availability of government money for libraries during the past twenty years disproves this theory. The Commission believes that the American public not only accepts the principle of Federal funding for libraries, but also equates it with the Federal responsibility for public education.

Federal assistance programs for libraries have been for the acquisition of materials, the provision of new services, library training and research, new building construction, aid to special groups, and so forth. They have affected public libraries, school libraries, college and university libraries. A small portion of the funds under Title III of LSCA have also been available for interlibrary cooperation. At the close of 1972, the total sum in the annual Federal budget for library grant programs amounted to $140 million. In addition, the National Science Foundation and other government agencies have funded specific projects involving libraries, indexing and abstracting services, and other organizations in the information community. The Federal Government also supports three

major libraries: the Library of Congress; the National Library of Medicine; and the National Agricultural Library. As a result, these institutions are able to perform many important national library functions that benefit the people of the United States.

In 1973, the Administration recommended the elimination of Federal grant programs for libraries. It recommended revenue sharing as an alternative method of supporting libraries, and the General Revenue Sharing Act qualified libraries to receive appropriations for operating expenses. The preponderance of testimony to the Commission indicates that the revenue sharing mechanism does not work well for libraries. The revenue sharing mechanism is unsatisfactory for libraries because it forces them to compete for funds with local governments and their utilitarian agencies, such as the police and fire departments. As educational agents in the community, libraries provide long-range services to all people, but, unfortunately, it is difficult to justify this as a local priority when conspicuous utilitarian problems need immediate correction. As a result, city officials in some cities are reluctant to share some revenue with libraries. Indications received by the Commission thus far reveal that, in some localities, revenue sharing money is offsetting normal operating budgets of libraries, rather than providing them with funds for new programs and services. In such circumstances, it is unlikely that revenue sharing funds will have any impact at all on cooperative action programs or intersystem planning.

Recent actions by the Congress have restored appropriations for many of the categorical aid programs which were eliminated, but the policy of the Administration continues to favor their eventual termination. The President's budget for fiscal year 1975, released for information and Congressional action in January 1974, mentioned a new Federal initiative in the area of library services. It outlines the provisions of new legislation, called the Library Partnership Act. This proposed bill calls for the improvement of library services through a system of grants fostering interlibrary cooperation and through demonstrations of basic library services where these are nonexistent or marginal. The general purposes of the bill are akin to those of Title III of the LSCA with the objectives more closely specified and the eligible community broadened.

While the Commission endorses individual activities which benefit libraries and users of libraries, it is even more strongly disposed to support a well-planned, comprehensive program for library and information services, one that will benefit the entire nation. Categorical aid available to libraries under an array of authorizations has resulted in improved library services in all types of libraries. However, many of the worthy goals are yet to be achieved. The Commission believes that categorical aid must be continued and strengthened until a comprehensive new program is authorized and adequately funded.

States and local governments vary greatly in the amount of financial assistance they give to libraries. Moreover, the way Federal funds are used within the states varies widely. Some have used the money for state-level direction and coordination, while others have spent it on new or improved local services. The Federal principle of requiring matching funds from the state and/or local governments has, itself, had varied effects. In some instances, it has led states to originate state programs that didn't exist before. In other cases, it has not yet achieved matching state aid for libraries. However, in general, wealthy states have been able to take greater advantage of the opportunity than poor states, even though the real need may have been greater among the latter.

Past Federal funding has succeeded in fulfilling part of the original objectives of Federal legislation, but by no means all of them. An enlightened public policy of support for libraries and other information activities, and continuing financial assistance, are dual objectives which the Commission considers vital to the National Program. If the nation is to look forward to constructive development and utilization of knowledge resources throughout the country, an infusion of financial assistance on a large scale is mandatory, and the United States must also revise its philosophy on how Federal and state funding should be allocated to support this nationwide purpose. What is needed is a program of balanced intergovernmental funding.

It is premature to stipulate the criteria for requesting financial assistance from the Federal Government under the National Program, but some suggestions are here put forward for consideration. For example, each recipient would be asked in advance to:

- Request support only for programs that are consistent with National Program aims and objectives.
- Be willing to subscribe to, and to utilize, national bibliographic, technical, and other standards.
- Provide assurance that successful programs, basic to a library's mission, and begun with Federal funds, will be sustained by the recipient for at least several years.
- Stipulate that Federal funds would not be used to offset or dilute financial responsibility locally, regionally, or at the state level to meet prescribed levels of service.
- Match Federal funds with local or state funds according to a formula based on factors other than merely population or per capita income.
- Develop a mutually-compatible formula for matching funds between the state and local governments similar to that between the state and Federal Government.
- Adhere to the protocols and conventions of use established for the nationwide network.

Principles and criteria, like those above, will have to be arrived at by careful study and discussion by all parties concerned, after which they will need to be incorporated in new legislation for the National Program. The Commission expects to devise these guidelines in cooperation with representatives from the public and private sectors. In recognition of the wide divergence of development existing among the states and other agencies in the private sector, it is expected that future funding would support three different levels of need:

(1) To help establish or initiate new programs;
(2) to help strengthen existing programs; and
(3) to help extend the scope of successful programs.

Until a carefully articulated funding policy is worked out for the National Program, and until new legislation is passed to implement the National Program, the Commission strongly favors the continuation of categorical aid under existing titles, with appropriate revisions for strengthening and expansion and with special emphasis on Title III, LSCA, in order to maintain national momentum toward cooperative projects and networking.

Figure III depicts the type and purpose of Federal funding support required for the National Program.

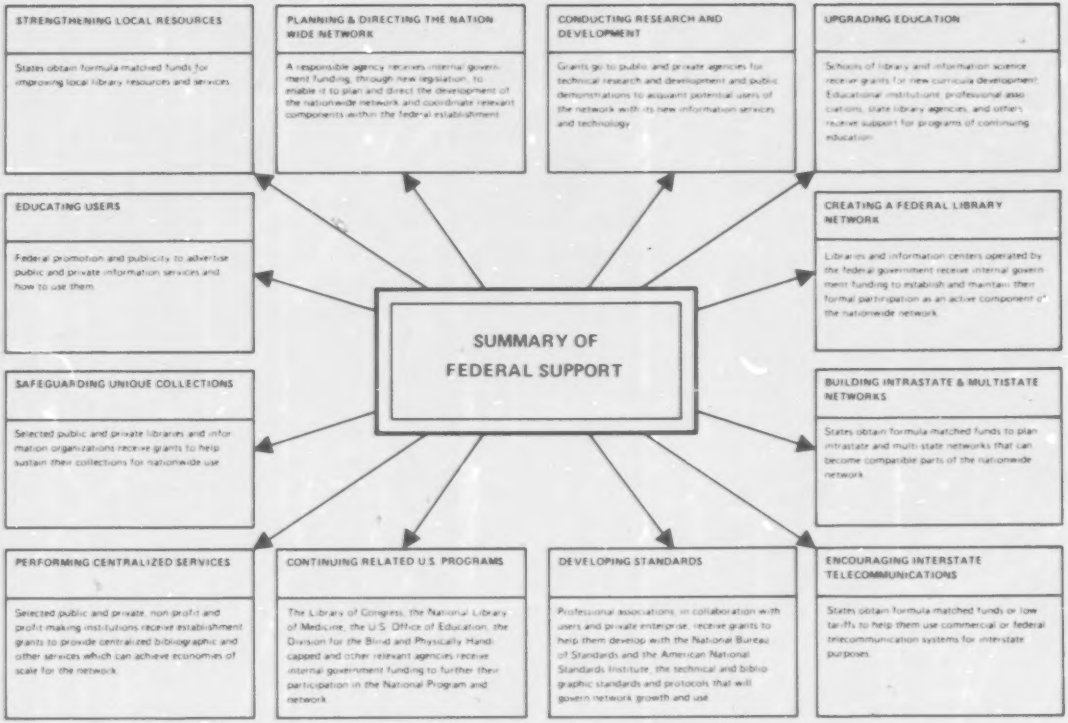
STRENGTHENING LOCAL RESOURCES
States obtain formula matched funds for improving local library resources and services.
PLANNING & DIRECTING THE NATION WIDE NETWORK
A responsible agency receives internal government funding, through new legislation, to enable it to plan and direct the development of the nationwide network and coordinate relevant components within the federal establishment.
CONDUCTING RESEARCH AND DEVELOPMENT
Grants go to public and private agencies for technical research and development and public demonstrations to acquaint potential users of the network with its new information services and technology.
UPGRADING EDUCATION
Schools of library and information science receive grants for new curricula development. Educational institutions, professional associations, state library agencies, and others receive support for programs of continuing education.
EDUCATING USERS
Federal promotion and publicity to advertise public and private information services and how to use them.
CREATING A FEDERAL LIBRARY NETWORK
Libraries and information centers operated by the federal government receive internal government funding to establish and maintain their formal participation as an active component of the nationwide network.
SUMMARY OF FEDERAL SUPPORT
SAFEGUARDING UNIQUE COLLECTIONS
Selected public and private libraries and information organizations receive grants to help sustain their collections for nationwide use.
BUILDING INTRASTATE & MULTISTATE NETWORKS
States obtain formula matched funds to plan intrastate and multi-state networks that can become compatible parts of the nationwide network.
PERFORMING CENTRALIZED SERVICES
Selected public and private, non-profit and profit-making institutions receive establishment grants to provide centralized bibliographic and other services which can achieve economies of scale for the network.
CONTINUING RELATED U.S. PROGRAMS
The Library of Congress, the National Library of Medicine, the U.S. Office of Education, the Division for the Blind and Physically Handicapped and other relevant agencies receive internal government funding to further their participation in the National Program and network.
DEVELOPING STANDARDS
Professional associations, in collaboration with users and private enterprise, receive grants to help them develop with the National Bureau of Standards and the American National Standards Institute, the technical and bibliographic standards and protocols that will govern network growth and use.
ENCOURAGING INTERSTATE TELECOMMUNICATIONS
States obtain formula matched funds or low tariffs to help them use commercial or federal telecommunication systems for interstate purposes.

FIGURE III. PROPOSED COORDINATED FEDERAL SUPPORT TO IMPLEMENT THE NATIONAL PROGRAM

Chapter IV

Conclusion

The Commission believes that the country's library and information services are not yet organized to meet the needs of the nation as a whole. Different libraries and information services are, indeed, performing important services for their respective clienteles, but, as a group, they are developing haphazardly. The Commission believes the time has come for the nation to change direction by henceforth treating recorded information and knowledge as a national resource and making the benefits of library and information services available for all the people. Such action would prove a great intellectual catalyst for the country and place the United States in a stronger position to cope with its own economic and social problems. If we continue traditional practices much longer, the Commission fears that, within the span of only a few years, America will be faced with information chaos that will work against the country's best interests.

Deficiencies in current resources and services demand careful planning for the systematic development of material and human resources, the continuing education of professional and paraprofessional personnel, an adequate financial base for libraries and other information-handling units, the cost-effective application of new technologies, and the development of a spirit of cooperation without which no nationwide plan for improved services can succeed.

A major transformation of the library and information structure in this country is required. The new structure must be based on a new philosophy of service and a new Federal and state investment policy. Success will depend on sound planning by each and every library and information center, on dedication to a common sense of direction and purpose, on a commitment to national cooperative action, and on new Federal policies which treat information as a national resource.

Such a program implies an unprecedented investment in libraries and information centers by Federal, state, and local governments. Merely continuing the past practice of giving small grants to the states for individual libraries or for unco-

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ordinated systems development will not do the job. The Commission believes that the Federal Government must bear a permanent responsibility for preserving and maintaining the knowledge resources of the nation and for making a specific commitment to their interdependent development.

The proposed National Program implies changes in jurisdictional arrangements, in forms of bibliographic processing, in patterns of service, and in funding practices. These changes will come about gradually, and it will take considerable time to achieve substantial results. Strong resources must, therefore, continue to be built at the local, state, and regional levels with Federal assistance while the new basis for a nationwide network is being prepared.

We on the Commission believe that the profession is prepared and is ready to advance traditional librarianship, to apply computer and communication technology, and to work together in creating the strongest possible information services for the country.

America must not forget her dream of individual freedom and of an open approach to learning and knowledge. The Commission firmly believes that recorded knowledge is a national resource and its nationwide access a national responsibility. It urges the American people, through Federal, state, and local governments, and public and private institutions to support a nationwide program of library and information service as a high-priority national goal.

References and Notes

(1) Swank, R. C., "Interlibrary Cooperation, Interlibrary Communications, and Information Networks—Explanation and Definition," in *Proceedings of the Conference on Interlibrary Communications and Information Networks* (edited by J. Becker), Chicago, American Library Association, 1971, p. 20.

(2) *American Library Directory, 28th Edition*, New York, R.R. Bowker Company, 1972.

(3) United States Constitution, Article I, Section 8, Clause 8: "To promote the progress of science and useful arts by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries."

(4) Libraries in the United States: public libraries—8,366*; academic libraries—3,000 (est.)*; Federal libraries—2,313*; special libraries (other than Federal)—12,000**; school libraries—65,000 (est.)*; Total—90,679. Figures having an * were supplied by the National Center for Education Statistics, USOE; those having ** were supplied by the Special Libraries Association.

(5) Frase, R. W., *Library Funding and Public Support*, Chicago, American Library Association, 1973.

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(7) American Association of School Libraries, ALA and Association for Educational Communications and Technology, *Media Programs: District and School*, Chicago, ALA, and Washington, D.C., AECT, 1975.

(8) *Resources and Bibliographic Support for a Nationwide Library Program*, A Study Prepared for the National Commission on Libraries and Information Science, Rockville, Maryland, Westat, Inc., 1974.

(9) Shera, J. H., *The Foundation of Education for Librarianship*, New York, Wiley-Becker and Hayes, 1972, p. 498.

(10) *Conclusions and Recommendations*, Conference on National Bibliographic Control. Sponsored by the Council on Library Resources and the National Science Foundation, Washington, D.C., 1974.

Glossary

The language of modern library and information science is derived from several disciplines. This Glossary defines the principal technical terms used by the Commission in preparing this document.

Bibliographic Control

The uniform identification of items of recorded information in various media and the availability of a mechanism for gaining subsequent access to such information.

Consortium

A formal association of libraries and other organizations, having the same or interrelated service or processing objectives.

Constituency

A particular user group with specialized requirements for library and information service.

Data Bases

Files of bibliographic or other information recorded on magnetic tape or disk for computer processing.

Facsimile

The electronic transmission of an exact duplicate of a page, a graphic, or a film image.

Federal

Synonymous with the United States Government.

Federal Agency

A component of government in the Executive or Legislative Branch of the Federal establishment.

Hardware

The physical equipment in a data processing or other machine system (as contrasted with software).

Information

Includes facts and other recorded knowledge found in books, periodicals, newspapers, reports, audiovisual formats, magnetic

tapes, data banks (bases), and other recording media. (The word "information," in this document is used interchangeably with the word "knowledge.")

Information Center

A library or other facility that emphasizes the analysis, evaluation, and synthesis of information.

Information Industry

Certain organizations in the for-profit part of the private sector which process, store, or disseminate information under contractual or sales arrangements. Examples of components of the information industry include: abstracting and indexing services; data base producers; reprint houses; commercial information retrieval services, etc.

Information Scientist

A specialist in systems analysis, computers, communications, micrographics, and other technology based means for processing information.

Information Technology

Refers to the application of computers, telecommunications, micrographics, audiovisuals, and other equipment, techniques, and materials for making information available to people.

Interface

The area or mechanism of contact and interaction between any two systems, subsystems, or organizations. An interface may be technical (e.g., electronic) or administrative.

Interlibrary Cooperation

Informal agreements between and among libraries to participate in a specific process or service for mutual benefit.

Librarian

A specialist in the organization, management, and utilization of recorded information.

Library

An institution where diverse information is stored, systematically organized, and where services are provided to facilitate its use. It may contain books, films, magazines, maps, manu-

scripts, microfilms, audiovisual materials, tape recordings, computer tapes, etc. It also provides information services to requesters from its own and from outside resources.

Multistate Affiliations

Regional arrangements (by informal agreement, compact, or by contract) among states or statewide agencies to pursue common library and information programs.

National

Refers to interests that transcend local, state, and regional concerns. The term is also used to refer to organizations whose operations embody or serve these broader interests.

National Bibliographic Center

A place where the basic record for each bibliographic item is created (or verified) and held to serve the full range of needs of libraries, information centers, abstracting and indexing services, and national and trade bibliographies.

National Lending Library

A central library, within a country, responsible for acquiring at least one copy of a prescribed class of material and making it available to other libraries by loan or photocopy service.

National Plan

The phased schedule by which the National Program is implemented to meet its program objectives.

National Program

An organized and articulated statement prepared to provide for the coherent development of library and information activities in the United States to meet the needs of its people.

Nationwide

That which extends throughout the country.

Network

Two or more libraries and/or other organizations engaged in a common pattern of information exchange, through communications, for some functional purpose. A network usually consists of a formal arrangement whereby materials, information, and services provided by a variety of types of libraries

and/or other organizations are made available to all potential users. (Libraries may be in different jurisdictions but agree to serve one another on the same basis as each serves its own constituents. Computers and telecommunications may be among the tools used for facilitating communication among them.)

On-line Retrieval Services

Retrieval services involving direct interactive communication between the user at a terminal and the computer programmed to provide access to one or more data bases.

Private Sector

Organizations not directly tax supported. Includes organizations outside of government such as profit-making companies and not-for-profit institutions, which produce, process, store, or disseminate information.

Public Sector

Organizations directly tax supported.

Regional Resource Center

An institution especially chartered to provide a common service to a cooperative of libraries in differing political jurisdictions.

Software

The intellectual instructions—such as a computer program—which govern machine operations.

State Library Agency

The official agency of a state charged by the law of that state with the extension and development of public library services throughout the state. This agency has adequate authority under the law of the state to administer state plans in accordance with the provisions of the Library Services and Construction Act, and is generally responsible for statewide planning and coordination of cooperative library and information services.

System

An organization of people, machines, material resources, and procedures, designed to accomplish a given purpose or set of purposes. A system may exist within a library or information activity, or it may exist when two or more library or informa-

tion activities agree to participate in a common service program utilizing their resources.

Telecommunication

The exchange of information by electrical transmission.

Telefacsimile

See Facsimile.

User

Any individual or group with a desire, no matter how casual or how serious, to use libraries and information facilities.

Listing of Related Papers

1. Relationship and Involvement of the State Library Agencies with the National Program Proposed by NCLIS—Alphonse F. Trezza, Director, Illinois State Library
2. Role of the Public Library in the National Program—Allie Beth Martin, Director, Tulsa City/County Library System
3. The Relationship and Involvement of the Special Library with the National Program—Edward G. Strable, Manager, Information Services, J. Walter Thompson Company—Chicago
4. The Independent Research Library—William S. Budington, Executive Director and Librarian, The John Crerar Library
5. The Information Service Environment Relationships and Priorities—Paul G. Zurkowski, President, Information Industry Association
6. Manpower and Educational Programs for Management, Research, and Professional Growth in Library and Information Services—Robert S. Taylor, Dean, School of Information Studies, Syracuse University
7. School Library Media Programs and the National Program for Library and Information Services—Bernard M. Franckowiak, School Library Supervisor, Wisconsin Department of Public Instruction
8. National Program of Library and Information Services of NCLIS: Implication for College and Community College Libraries—Beverly P. Lynch, Executive Secretary, Association of College and Research Libraries, American Library Association
9. The National Library Network, Its Economic Rationale and Funding—Robert M. Hayes, Dean, Graduate School of Library and Information Science, University of California
10. Intellectual Freedom and Privacy: Comments on a National Program for Library and Information Services—R. Kathleen Molz, Chairman, Intellectual Freedom Committee, American Library Association
11. International Library and Information Service Develop-

ments as they Relate to the National Commission on Libraries and Information Science—Foster E. Mohrhardt, Former President, Association of Research Libraries and American Library Association

12. An Economic Profile of the U.S. Book Industry—Curtis G. Benjamin, Consultant, McGraw Hill, Inc.
13. The Role of the Information Center in the National Commission on Libraries and Information Science Program for the Improvement of National Information Services—Herman M. Weisman, Manager, Information Services, National Bureau of Standards
14. The Relationship of the Government and the Private Sector in the Proposed National Program—David Carvey, Vice President, Disclosure, Inc.
15. New Federal Authority and Locus of Responsibility—John Bystrom, Professor of Communication, University of Hawaii
16. Relationship and Involvement of the Multi-State Library and Information Community with the National Program for Library and Information Services—Maryann Duggan, Director, Continuing Education and Library Resources Program-WICHE
17. The Future of Federal Categorical Library Programs—Robert Frase, Consulting Economist
18. Availability and Accessibility of Government Publications in the National Program for Library and Information Services—Bernard Fry, Dean, Graduate Library School, Indiana University
19. Cost Comparisons of Alternative Bibliographic Access Systems—Saul Herner, President, Herner and Company
20. University Libraries and the National Program for Library and Information Services—John McDonald, Executive Director, Association of Research Libraries
21. Federal Libraries and Information Centers—James Riley
22. Quantitative Data Required to Support and Implement a National Program for Library and Information Services—Theodore Samore, School of Library Science, The University of Wisconsin-Milwaukee
23. Urban Information Centers and their Interface with the National Program for Library and Information Services—Jane E. Stevens, Library Science Department, Queens College

24. The Role of Professional Associations in the National Program for Library and Information Services—Roderick G. Swartz, Formerly Deputy Director, National Commission on Libraries and Information Science
25. The Role of Not-For-Profit Discipline-Oriented Information-Accessing Services in a National Program for Library and Information Services—Fred A. Tate, Assistant Director for Planning and Development, Chemical Abstracts Service
26. The Impact of Machine-Readable Data Bases on Library and Information Services—Martha Williams, Director, Information Retrieval Research Laboratory, University of Illinois at Urbana-Champaign
27. The Role of The United States Book Exchange in the Nationwide Library and Information Services Network—Alice Dulany Ball, Executive Director, The United States Book Exchange, Inc.

Appendix I

Public Law 91-345

Public Law 91-345
91st Congress, S. 1519
July 20, 1970
As amended by Public Law 93-29, Section 803, May 3, 1973

An Act

To establish a National Commission on Libraries and Information Science, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "National Commission on Libraries and Information Science Act". National Commission on Libraries and Information Science Act.

STATEMENT OF POLICY

SEC. 2. The Congress hereby affirms that library and information services adequate to meet the needs of the people of the United States are essential to achieve national goals and to utilize most effectively the Nation's educational resources and that the Federal Government will cooperate with State and local governments and public and private agencies in assuring optimum provision of such services.

COMMISSION ESTABLISHED

SEC. 3. (a) There is hereby established as an independent agency within the executive branch, a National Commission on Libraries and Information Science (hereinafter referred to as the "Commission").

(b) The Department of Health, Education, and Welfare shall provide the Commission with necessary administrative services (including those related to budgeting, accounting, financial reporting, personnel, and procurement) for which payment shall be made in advance, or by reimbursement, from funds of the Commission and such amounts as may be agreed upon by the Commission and the Secretary of Health, Education, and Welfare.

84 STAT. 440
84 STAT. 441

CONTRIBUTIONS

SEC. 4. The Commission shall have authority to accept in the name of the United States grants, gifts, or bequests of money for immediate disbursement in furtherance of the functions of the Commission. Such grants, gifts, or bequests, after acceptance by the Commission, shall be paid by the donor or his representative to the Treasurer of the United States whose receipts shall be their acquittance. The Treasurer of the United States shall enter them in a special account to the credit of the Commission for the purposes in each case specified.

FUNCTIONS

SEC. 5. (a) The Commission shall have the primary responsibility for developing or recommending overall plans for, and advising the appropriate governments and agencies on, the policy set forth in section 2. In carrying out that responsibility, the Commission shall—

(1) advise the President and the Congress on the implementation of national policy by such statements, presentations, and reports as it deems appropriate; Advice to President and Congress.

(2) conduct studies, surveys, and analyses of the library and informational needs of the Nation, including the special library and informational needs of rural areas, of economically, socially, or culturally deprived persons, and of elderly persons, and the means by which these needs may be met through information centers, through the libraries of elementary and secondary schools and institutions of higher education, and through public, research, special, and other types of libraries; Studies, surveys, etc.

(3) appraise the adequacies and deficiencies of current library and information resources and services and evaluate the effectiveness of current library and information science programs;

(4) develop overall plans for meeting national library and informational needs and for the coordination of activities at the Federal, State, and local levels, taking into consideration all of the library and informational resources of the Nation to meet those needs;

(5) be authorized to advise Federal, State, local, and private agencies regarding library and information sciences;

(6) promote research and development activities which will extend and improve the Nation's library and information-handling capability as essential links in the national communications networks;

Report to President and Congress.

(7) submit to the President and the Congress (not later than January 31 of each year) a report on its activities during the preceding fiscal year; and

(8) make and publish such additional reports as it deems to be necessary, including, but not limited to, reports of consultants, transcripts of testimony, summary reports, and reports of other Commission findings, studies, and recommendations.

Contract authority.

(b) The Commission is authorized to contract with Federal agencies and other public and private agencies to carry out any of its functions under subsection (a) and to publish and disseminate such reports, findings, studies, and records as it deems appropriate.

Hearings.

(c) The Commission is further authorized to conduct such hearings at such times and places as it deems appropriate for carrying out the purposes of this Act.

(d) The heads of all Federal agencies are, to the extent not prohibited by law, directed to cooperate with the Commission in carrying out the purposes of this Act.

84 STAT. 441
84 STAT. 442

MEMBERSHIP

Appointments by President.

SEC. 6. (a) The Commission shall be composed of the Librarian of Congress and fourteen members appointed by the President, by and with the advice and consent of the Senate. Five members of the Commission shall be professional librarians or information specialists, and the remainder shall be persons having special competence or interest in the needs of our society for library and information services, at least one of whom shall be knowledgeable with respect to the technological aspects of library and information services and sciences, and at least one other of whom shall be knowledgeable with respect to the library and information service and science needs of the elderly. One of the members of the Commission shall be designated by the President as Chairman of the Commission. The terms of office of the appointive members of the Commission shall be five years, except that (1) the terms of office of the members first appointed shall commence on the date of enactment of this Act and shall expire two at the end of one year, three at the end of two years, three at the end of three years, three at the end of four years, and three at the end of five years, as designated by the President at the time of appointment, and (2) a member appointed to fill a vacancy occurring prior to the expiration of the term for which his predecessor was appointed shall be appointed only for the remainder of such term.

Terms of office.

Compensation, travel expenses.

(b) Members of the Commission who are not in the regular full-time employ of the United States shall, while attending meetings or conferences of the Commission or otherwise engaged in the business of the Commission, be entitled to receive compensation at a rate fixed by the Chairman, but not exceeding the rate specified at the time of such

service for grade GS–18 in section 5332 of title 5, United States Code, including traveltime, and while so serving on the business of the Commission away from their homes or regular places of business, they may be allowed travel expenses, including per diem in lieu of subsistence, as authorized by section 5703 of title 5, United States Code, for persons employed intermittently in the Government service. 35 F.R. 6247. 83 Stat. 190.

(c)(1) The Commission is authorized to appoint, without regard to the provisions of title 5, United States Code, covering appointments in the competitive service, such professional and technical personnel as may be necessary to enable it to carry out its function under this Act. Professional and technical personnel, appointment. 80 Stat. 378.

(2) The Commission may procure, without regard to the civil service or classification laws, temporary and intermittent services of such personnel as is necessary to the extent authorized by section 3109 of title 5, United States Code, but at rates not to exceed the rate specified at the time of such service for grade GS–18 in section 5332 of title 5, United States Code, including traveltime, and while so serving on the business of the Commission away from their homes or regular places of business they may be allowed travel expenses, including per diem in lieu of subsistence, as authorized by section 5703 of title 5, United States Code, for persons employed intermittently in the Government service.

AUTHORIZATION OF APPROPRIATIONS

SEC. 7. There are hereby authorized to be appropriated $500,000 for the fiscal year ending June 30, 1970, and $750,000 for the fiscal year ending June 30, 1971, and for each succeeding year, for the purpose of carrying out the provisions of this Act.

Approved July 20, 1970.

LEGISLATIVE HISTORY:

HOUSE REPORTS: No. 91-240 accompanying H.R. 10666 (Comm. on Education and Labor) and No. 91-1226 (Comm. of Conference).
SENATE REPORT No. 91-196 (Comm. on Labor and Public Welfare).
CONGRESSIONAL RECORD:
Vol. 115 (1969): May 23, considered and passed Senate.
Vol. 116 (1970): April 20, considered and passed House, amended, in lieu of H.R. 10666.
June 29, House agreed to conference report.
July 6, Senate agreed to conference report.

Appendix II

List of Commission Members

Andrew A. Aines, Senior Staff Associate, Office of Science Information Service, National Science Foundation, Washington, D.C. (1976)

William O. Baker, President, Bell Telephone Laboratories, Murray Hill, New Jersey (1975)

Joseph Becker, President, Becker and Hayes Division, John Wiley and Sons, Los Angeles, California (1979)

Frederick Burkhardt, President-Emeritus, American Council of Learned Societies, New York (1975)

Daniel W. Casey, Immediate Past President, American Library Trustee Association, Syracuse, New York (1978)

Harold C. Crotty, President, Brotherhood of Maintenance of Way Employes, Detroit, Michigan (1977)

Carlos A. Cuadra, General Manager, SDC Search Service, System Development Corporation, Santa Monica, California (1979)

Leslie W. Dunlap, Dean, Library Administration, The University of Iowa Libraries, Iowa City, Iowa (1975)

Martin Goland, President, Southwest Research Institute, San Antonio, Texas (1977)

Louis A. Lerner, Publisher, Lerner Home Newspapers, Chicago, Illinois (1977)

John Lorenz (Ex Officio), The Acting Librarian of Congress, U.S. Library of Congress, Washington, D.C.

Bessie Boehm Moore, Coordinator, Economic and Environmental Education, State Department of Education, Little Rock, Arkansas (1978)

Catherine D. Scott, Librarian, National Air and Space Museum, Smithsonian Institution, Washington, D.C. (1976)

Julia Li Wu, Head Librarian, Virgil Junior High School, Los Angeles, California (1978)

John E. Velde, Jr., Velde, Roelfs and Company, Pekin, Illinois (1979)

[1] Expiration date of appointments in parenthesis.

Former Commission Members

John G. Kemeny, President, Dartmouth College, Hanover, New Hampshire (1973)

L. Quincy Mumford (Ex Officio), The Librarian of Congress, U.S. Library of Congress, Washington, D.C. (retired, 1975)

Alfred R. Zipf, Executive Vice President, Bank of America, San Francisco, California (1973)

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